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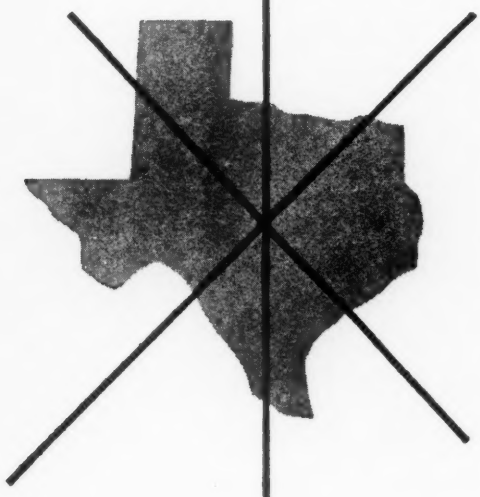

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The Business Situation in Texas

By FRANCIS B. MAY

In August the seasonally adjusted Index of Texas Business Activity rose to an all-time high of 256% of the 1947–49 average. This was an advance of 11% over July and 7% over August of last year. It was a level 2% above the previous peak of 252 reached in May. This rise in the index was the result of improvements in nearly all aspects of economic activity measured by the barometers of Texas business computed by the Bureau of Business Research.

Miscellaneous freight carloadings in August regained the 1% of volume lost due to a July decline. At 76% of the 1947–49 average the seasonally adjusted value was 1% above August of last year.

Crude petroleum production rose 1% in August, after seasonal adjustment, to 110.7% of 1947–49. This slight gain in the face of continued eight-day proration was due in part to allowables granted to new wells. The Railroad Commission has ordered a continuation of eight-day allowables through October. A comparison of the number of days production allowed for the first ten months of the year for the past several years is shown below:

January-October period of	*Number of producing days*
1957	147
1958	99
1959	104
1960	87
1961	84

The reduction for 1961 is 3.45% below 1960. October is the sixth consecutive eight-day month. There were seven consecutive eight-day months (May-November inclusive) last year.

An encouraging development from the point of view of maintaining reserves of crude for future production is the discovery of the Fairway field in Henderson and Anderson counties. Any field with estimated reserves of 100 million barrels or more is considered a major strike. Estimates of eventual production from Fairway run as high as 400 million barrels, according to *The Oil and Gas Journal*. Pessimism generated by the relatively small size of new oil discoveries in this country in recent years will be allayed by this new development.

Seasonally adjusted crude oil runs to stills were down 1% in August to 148% of 1947–49. At this value the index was 2% above August of last year. Crude runs to stills in the United States, exclusive of the West Coast have been high in recent weeks. In August they exceeded the volume of runs in August 1959 and 1960. As a result, gasoline inventories have been high. High gasoline inventories have resulted in price wars, an endemic condition of the industry in recent years of oil glut.

In recent years petroleum refiners have tended more and more to relate the price they offer for crude oil to the

"realized value" of a barrel of crude. The realized value is the market value of the refined products (gasoline, kerosene, fuel oil, etc.) produced from each barrel of crude. Formerly, prices were paid for certain broad categories of crude without a close relationship with realized value.

SELECTED BAROMETERS OF TEXAS BUSINESS
(1947–49 = 100)

Index	Aug 1961	July 1961	Aug 1960	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
Texas business activity	256	230	239	+ 11	+ 7
Miscellaneous freight carloadings in S.W. district	76	75	75	+ 1	+ 1
Crude petroleum production	110.7*	110.0*	106.1	+ 1	+ 4
Crude oil runs to stills	148	150	145	— 1	+ 2
Total electric power consumption	471*	439*	444r	+ 7	+ 6
Industrial power consumption	409*	392*	386r	+ 4	+ 6
Bank debits	305	273	285	+ 12	+ 7
Ordinary life insurance sales	400	407	408	— 2	— 2
Total retail sales (1957–59=100)	112*	105r	107r	+ 7	+ 5
Durable-goods sales (1957–59=100)	113*	104r	104r	+ 9	+ 9
Nondurable-goods sales (1957–59=100)	111*	105r	108r	+ 6	+ 3
Urban building permits issued (1957–59=100)	151.4	115.4	118.3	+ 31	+ 28
Residential (1957–59=100)	125.1	115.6	90.8	+ 8	+ 38
Nonresidential (1957–59=100)	198.1	121.7	166.0	+ 63	+ 19
Average weekly hours manufacturing (1957–59=100)	99.3*	99.5r	99.8	**	— 1

Adjusted for seasonal variation.
* Preliminary.
r Revised.
** Change is less than one-half of one percent.

Recent price wars among refiners and retailers have lowered the realized value, putting pressure on crude oil prices. Some grades have had their price cut. Continued high runs to stills may bring further price cuts for crude. With average daily production per well at 12.5 barrels in August and prices weakening, Texas oil producers are not happy.

Total electric power consumption in Texas in August was up 7%. At 471% of 1947–49 the seasonally adjusted index was 6% above August of last year. A 4% increase in industrial power consumption aided the rise. At 409% of 1947–49 the index of industrial power consumption was 6% above last August.

The seasonally adjusted index of average weekly hours in manufacturing in August was unchanged from July. At 99.3% of 1947–49 the index was 1% below August of last year. Average weekly wages in manufacturing in August were $93.48, up 5% from August 1960. The rise was due to an increase in average hourly earnings from $2.17 in August 1960 to $2.28 in August 1961. Data on hours and wages are based on reports from the Texas Employment Commission.

Reports from the Bureau of Labor Statistics show that insured unemployment in the state in August was 2.9% of average covered employment. The national rate was 4.5% of average covered employment. Texas still has one of the lowest insured unemployment rates in the country. Among neighboring states Louisiana has a 5.4% rate; Arkansas, 5.4%; Oklahoma, 4.7%; and New Mexico, 4.2%.

The U. S. Department of Commerce reports that per capita personal income in Texas was $1,924 in 1960. Per capita personal income in the nation was $2,223. Thus state per capita income was 87% of the national average. Texas ranked thirty-second among the fifty states plus the District of Columbia in 1960 per capita income.

An analysis of per capita income in the state and the nation during the period 1947–1960 inclusive shows that both grew at an annual rate of slightly over 4% compounded annually. This rate includes increases due to inflation as well as gains in real income. There is a slackening in the growth rate of Texas per capita income for the 1957–1960 period. This is undoubtedly due in large part to the drastic decline in growth of Texas' basic oil industry. The state must accelerate its efforts to obtain new industries, particularly growth industries. Much has been done in this area in the past but efforts must now be redoubled. This is a long-term problem that must be solved by a long-term effort.

Building Construction

The seasonally adjusted index of total urban building permits issued in Texas made a strong upward jump in August to a value of 151.4% of the average volume for the 1957–59 period. At this level the index was 31% above July and 28% above August of last year. Increases in issues of both residential and nonresidential permits contributed to the rise.

Residential permits issued rose 8% in August, after seasonal adjustment to a value of 125.1% of the 1957–59 average. At this level the index was 38% above the August 1960 level.

Increases in permits issued for duplexes and one-family dwellings caused the rise in the residential sector. Permits for one-family dwellings rose 25% on an unadjusted basis. Permits for two-family dwellings, unadjusted, rose 144%. There are no seasonal indexes available for these categories. Permits for apartment buildings other than duplexes declined in August. Cumulative permits for three or more apartment buildings for the first eight months are, however, substantially above the first eight months of 1960.

August permits for nonresidential buildings rose 63% after seasonal adjustment. The August value of the index of 198.1% was 19% above August 1960. Increases in construction of nonhousekeeping types of residential buildings such as hotels contributed to the overall rise, moving up 13% on an unadjusted basis. For the first eight months of this year, permits for this type of building were 71% above the January-August 1960 period.

Permits for places of amusement, unadjusted, were 47% higher in August. Cumulative permits for the first eight months were 2% above January-August of 1960.

Permits for construction of service stations and private garages were up 25% and 27%, respectively, from July.

Permits for hospitals were up very strongly. Cumulative permits for this kind of structure are running 39% ahead of the first eight months of last year.

Permits for combined office-bank buildings, unadjusted were up 25% in August.

Permits for public works and utilities were up 26% in August and so far this year are 9% ahead of 1960.

Permits for educational buildings were up 40% in August and so far this year are 4% ahead of 1960.

Permits for stores and mercantile buildings dropped 1% in August but cumulative permits for the year through August 31, were 8% above the first eight months of 1960.

Additions, alterations, and repairs to existing structures rose 40% in August on an unadjusted basis. The cumulative value of permits of this type for the first eight months was 15% above the similar 1960 period. Increases were registered for both housekeeping and nonhousekeeping types of structures. The August rise for housekeeping structures was 16% and the cumulative increase was 4% for the first eight months. Permits for alterations and repairs to non-housekeeping structures were up 67% in August, and the cumulative increase for the first eight months was 27%.

Total dollar value of permits of all kinds was $948.6 million for the first eight months of this year and $893.4 million for the same period last year.

In the residential field, construction of one-family homes has held up well despite a spate of apartment building. Many apartments are filled by two or more young adults who otherwise would be occupying single rooms in rooming houses.

Building of schools continues as a strong supporting factor in the nonresidential sector.

Retail Sales

The seasonally adjusted index of retail sales in Texas rose 7% in August to a value of 112% of the 1957–59 average value of sales. This brisk rise contrasts very favorably with the 2% decline in sales registered by the index in July. Sales of both durable and nondurable goods shared the rise. Durable goods sales rose 9% in August, after allowance for seasonal factors, to a level of 113% of the 1957–59 average sales volume. Nondurable goods sales rose 6% after seasonal adjustment to a value of 111% of the 1957–59 average. Since the late recession was centered in durable goods, particularly steel and automobiles, the substantial rise in sales in the durables sector is a favorable development.

Larger-than-seasonal increases in sales were distributed throughout the various lines of merchandise of the durables sector, with furniture and appliance stores leading the field. A major factor contributing to the rise in sales was the impending state sales tax, effective September 1, 1961. Sales in this category of stores rose 23% in August. The usual seasonal rise for this group of stores is 1% in August. Lumber and hardware dealers had a good rise with lumber and building material dealers enjoying an 18% month-to-month increase on an unadjusted basis. No seasonal index of sales of lumber and building material dealers is available. The automotive group also experienced a greater-than-seasonal rise in business with a 4% increase in sales volume. Motor vehicle dealers' sales were up 4% on an unadjusted basis. This was a welcome increase because cumulative sales of automobiles for the January through August period were 8% below sales for the first eight months of 1960.

Merchandisers of nondurable goods also enjoyed greater-than-seasonal improvements in sales in all sectors. Back-to-school sales pushed clothing stores' August sales 24% above July. The usual seasonal rise for this group in August is 14%. August sales of apparel were 7% above August 1960.

Drug stores usually have about a 1% improvement in August sales. This time they rose 4% above July. Food stores had a 3% increase instead of the normal 1% increase. Eating and drinking places had a 5% rise instead of the usual 4%. Restaurant sales were up 6%. August sales of service stations usually decline an average of 2% from July. This time they rose 3%.

ESTIMATES OF TOTAL RETAIL SALES

Classification	Aug 1961 (millions of dollars)	Jan-Aug 1961 (millions of dollars)	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960	Percent change: Jan-Aug 1961 from Jan-Aug 1960
TOTAL	981.2	7136.1	+10	+5	—2
Durable goods*	350.9	2436.3	+ 9	+9	—3
Nondurable goods	630.3	4699.8	+10	+3	—1

* Contains automotive stores, furniture stores, and lumber, building materials, and hardware stores.

Sales of general merchandise stores were up 23% compared with a normal 9% rise. Sales of department stores were substantial contributors to this improvement. Department store sales were up 22% to a level 7% above August 1960.

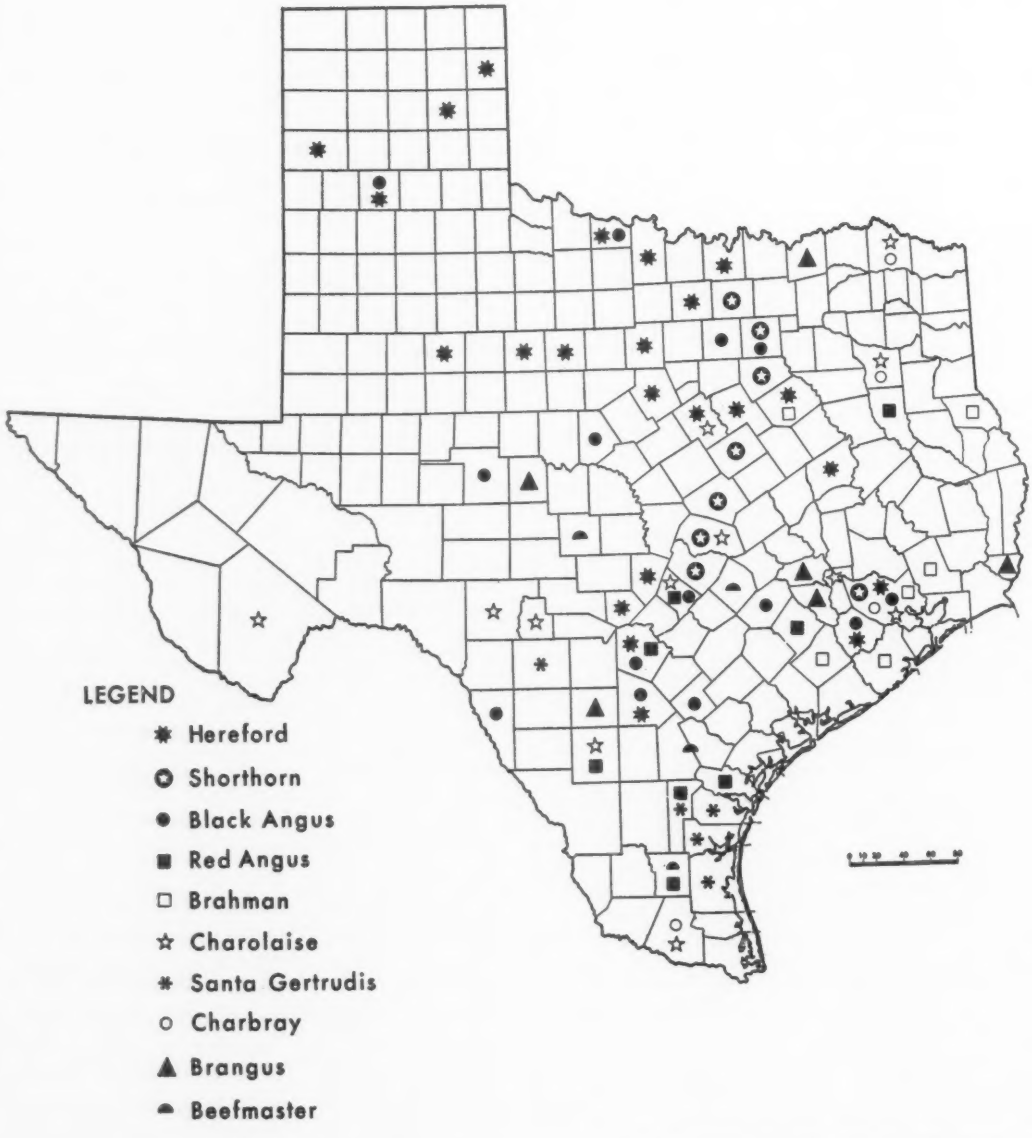
In the "other" retail groups, nursery sales were up 45% to a value of 28% above August 1960. Jewelry store sales were up 22% to a value 3% above August 1960.

Office and school supply dealers had a 36% increase in sales. This rise placed their volume of business 21% above August 1960.

Increases in sales attributable to the return of children to school will continue to be a substantial factor in years to come. Total births in Texas during the first half of the year were 121,796 compared with 115,730 during the first half of 1960 and 120,145 for the first half of 1959. according to the National Vital Statistics Division of the U. S. Department of Health, Education, and Welfare. Births in Texas for the first half of 1961 were 5.2% above the same period of 1960 and 1.4% above the first six months of 1959. Texas has had a population growth rate considerably above the national average throughout the post-World War II period.

Anticipations that Gross National Product will reach a record $540 billion in the fourth quarter, increases in total employment and wage payments are generating a set of conditions favorable to further rise in retail sales in the nation. The Texas hurricane has undoubtedly hurt retail sales along the Gulf Coast, especially in rural areas where crop damage was substantial. Just how much this will affect total sales in the state during the balance of the year remains to be seen. The Gulf Coast has a rich industrial and oil basis of support. These industries will provide continued support in the form of high wages. This support will lessen the over-all effect of the hurricane on retail sales. Insurance payments will also provide a stimulus, especially to lumber dealers.

MAJOR PUREBRED HERDS IN TEXAS AS INDICATED BY BREED ASSOCIATIONS



TEXAS:

Cosmopolitan Cattle Country

By JAMES D. GORDON

Were a Texas cowhand of a century ago to be reincarnated, he would have great difficulty identifying many of the creatures which now comprise the Texas beef cattle population. Nor could his astonishment be deemed unjustifiable. He would have been accustomed to expansive ranges unmarked by fences and populated solely by the now immortal longhorn, a creature so unlike its successors that it was frequently slaughtered for nothing more than its hide and tallow.

Today no less than nine breeds of beef cattle are in abundance on Texas' rangelands. The cowhand's appreciation for this transformation would require a comprehension of terms including genetics, artificial insemination, hormones, antibiotics, and nutrition.

Indeed, a myriad of new devices and techniques have been employed by the modern cattle industry. Their continued application, though seemingly novel in many instances, has been necessitated by competition for the most efficient use of farm capital. In Texas, the perpetual effort to maximize cattle productiveness is most evident, and it is here that the most significant advances have been made.

As a consequence of both this compulsion to maximize production and the state's natural assets, Texas has for many years retained the distinction of being the nation's greatest producer of cattle. At present, the state supports nearly 9.5 million head of cattle valued in excess of $1 billion. This has facilitated annual earnings exceeding $500 million by Texas cattlemen, a considerable contribution to the state's economy. Moreover, cattle production on this scale demands extensive marketing operations which provide a further impetus to economic headway.

In analyzing the transition in Texas cattle production, two elements are most apparent. First, and frequently viewed with some remorse, is the near-extinction of the longhorn. The second is responsible for the former. This is the introduction to the beef industry of numerous new faces and combinations thereof.

Longhorn Lineage

The first cattle ever to take advantage of Texas grasses accompanied a Spanish expedition north across the Rio Grande some 270 years ago. They were a part of the Spanish longhorn herd originally brought to Mexico by Governor General Villalobos in 1521. It is generally acknowledged that the chain of Catholic missions was responsible for the initiation of cattle raising in what was to be the state of Texas. These installations were concentrated in the San Antonio region.

Soon, a variety of French cattle made their way from Louisiana into the Texas coastal plains. Simultaneously, the early settlements of Virginia and Carolina were exporting dairy cattle to Texas. These ingredients were blended in some irretrievable recipe to produce the Texas Longhorn. These animals proved as prolific as the rabbits with which they shared the ranges. Hence, Texas continued as the domain of the longhorn and, by 1860, these animals numbered well over 3 million.

Yet the progressive beef industry was to abandon the rugged but meatless forerunner of the Texas cattle population. With the advent of economical fencing, rail service, and windmills, ranchers were less apprehensive about investing capital into herds of less robust but meatier animals.

Toward the end of the last century, a cattleman could economically limit the vicinity within which his stock

ranged, he was not required to herd his cattle to market, and finally he could rely more heavily upon a sufficient supply of water.

New Blood

These conditions precipitated the introduction of the Hereford by W. S. Ikard in 1876. Hence, North Central Texas was the original residence of this English successor to the longhorn. The whiteface has for many decades been the most popular beef producer in Texas, and it is estimated that the majority of beef cows residing in the state are of predominantly Hereford blood.

Yet, paradoxically, there has developed in the Texas cattle industry a spirit not unlike that of Detroit with its annual introduction of a plethora of new models. This tumultuous competition has, for the most part, been instigated by the proponents of various "new" breeds. Indeed the analogy with the auto industry is far reaching, including the importation of new models and the incorporation of foreign features into the domestic stock. Compactness has become a standard claim of several breeds.

Thus, as the longhorn's supremacy was obliterated by the introduction of the Hereford, the latter's status is now being challenged. However, the conditions for ascendancy of another breed are hardly as favorable at present as they were when the longhorn succumbed three quarters of a century ago. The whiteface is well entrenched; his supporters are both numerous and enthusiastic.

To the longhorn stock with its Spanish lineage, Texas cattlemen have introduced natives of numerous different areas. Most significant have been representatives of three British bloodlines, the holy cow of India, and a unique French specimen. The characteristics of these breeds are so diverse and so debatable that little unanimity exists as to the superiority of any one of them. Indeed, it is becoming apparent that considering the diverse climatic conditions in the various portions of the state there can be no single specimen ideal for the entire area.

In contrast to most competitive situations, breed rivalries are often resolved by individual cattlemen through the crossing of the competitors' specimens. If (1) the resulting attributes are favorable, (2) the animal is suited to the area's range conditions, and (3) the strain can be stabilized, a new breed may be established. Indeed, this is exactly what happened in Texas several times.

The Participants

The breeds listed in the ensuing discussion are all included in the USDA bulletin entitled "Beef-Cattle Breeds." Contrary to popular belief, however, this is not intended to constitute official recognition. The only instances in which the USDA confers the purbred status is upon importation, when, for duty exemption, recognition must be acknowledged.

(1) **Hereford** (originated in Herefordshire, England in 1742). Along with the Angus and the Shorthorn, the Hereford is a product of the British Isles. This breed is easily distinguished by its color markings—rust body and white face. Also white in color is the underside and the stockings.

The first Texan to invest in whiteface stock was W. S. Ikard who brought several Herefords to his Clay County ranch in 1876. Within the next decade, the whiteface found itself in the Panhandle on the J.A. Ranch, in several areas adjacent to San Antonio, and on the Swenson (SMS) Ranches based in Stanford and extending over nine Western Plains counties. Other early advocates of the Hereford include the XIT, Slaughter, Matador, and King Ranches.

Hereford proponents dwell upon two points. Their breed, they assert, has an unequalled capacity for the production of high-grade beef and it is capable of sustaining itself through the worst Texas blizzard. Any cattleman from the Panhandle, extreme North or West Texas, knows this quality is an absolute prerequisite, regardless of whether they agree that Hereford is so endowed.

It may be said with assurance that in every region of the state with a high cattle population, except in the subtropical coastal area, Hereford is in the majority. Hence, the whiteface is more uniformly distributed throughout the state than is any other breed. Annual registration figures during the past several years have been between 55,000 and 65,000 for the state. This figure excludes registration of Polled Herefords (a strain which does not produce horns). The 1960 total for the latter was 10,289. Thus, the combined Hereford registration for Texas is practically four times as great at that of any other breed.

(2) **Shorthorn** (developed in Tees River Valley, northeastern portion of England). The physical appearance of this breed is more difficult to characterize. Shorthorns are either roan, red, red with white spots, or white in color. The white is the less common of these.

This breed claims the distinction of being the first purebred beef producer to intrude upon the domain of the native longhorn. Two cows and a bull were purchased from Queen Victoria's own herd and transported to Texas in 1848. The deed is attributable to Colonel T. J. Shannon, a North Texas rancher. The shorthorn's meat-building ability, being in such contrast to that of the longhorn, was to attract much attention. Soon after the turn of the century Shorthorn was the most populous beef breed in the nation. It is generally acknowledged that the Shorthorn was responsible for the original up-breeding of Texas stock, which was, perhaps, the biggest single step in the creation of a state cattle industry.

Notable among the early herds were those in the Palo Duro Canyon area of the Panhandle, Jeff Davis County near Fort Davis, the King Ranch of South Texas and the Scofield ranch in Hill County which produced many of the state's top registered Shorthorns immediately after the turn of the century.

At present the majority of the breed's members are congregated in an area extending north from Travis County through Ellis and Dallas and terminating in Denton County. The major exception to this central and north central concentration exists in Harris County. However, few large herds of pure bred Shorthorns are found in either the far-west or deep-southern portions of the state.

The American Shorthorn Association recorded Texas registrations for 1960 at a figure slightly over 1,100, including Polled Shorthorns.

(3) **Angus** (originated in the counties of Aberdeen and Angus, Scotland). The third member of the British trio is the Aberdeen Angus. Angus cattle are entirely black and

are noted for their comparatively smooth coats of hair. Equally notable, this breed never produces horns.

The first Angus appearance in Texas dates between 1880–1890. The immense XIT Ranch, once extending through ten panhandle counties, provided one of the earliest residences for the Black Angus. However, Angus popularity for some years lagged behind that of its British kin, the Hereford and Shorthorn. It has not until recent years, assumed a degree of popularity in Texas comparable with either. Yet during the past decade, the total number of Angus registered annually in the state has soared from 3,300 in 1950 to a figure approaching 19,000 for 1960. As a consequence of this unparalleled growth, Angus has surpassed all breeds except Hereford insofar as annual registration figures are concerned. Only two other states exceeded this number.

As disclosed by the Texas Angus Association, their Texas representatives are most prevalent throughout East Texas and the areas adjacent to San Antonio, Fort Worth, and San Angelo. Specifically, they cite Tarrant, Dallas, Harris, Tom Green, Bexar and Wichita counties. Boasting the largest herds are the Essar Ranch, San Antonio; McFarlane Ranch, Brownwood; J. V. Hampton, Fort Worth; Joe Lemley, San Angelo; and S. C. Thurmond, Eagle Pass. Like Herefords, Angus is well distributed throughout the state. The Association states, "We do not believe there is a county in Texas but what don't have a few Angus."

In the preceeding, reference has been entirely to the 'Black' Angus. In fact, many cattlemen aren't even aware that Angus comes in any other color. Such ignorance is a discredit to the representatives of the Red Angus breed. Enthusiasts of this line are prompt in explaining that red is the recessive color of the Black Angus, and that the Red Angus is not a crossbreed. Moreover, the red has been stabilized and purports to be more highly heat resistant than is the black.

The first Texas Reds made their home on the McDaniel Ranch near Alice and the Henshaw Ranch in Brooks County. This was in 1952 when only 3 such herds existed in the United States. The Red minority is to be expected, as only one of every 500 Angus born is of that color. At present, the Red Angus populates at least 40 Texas counties; the greatest number of Red Angus are in Cherokee, LaSalle, Bexar, Hays, Jim Wells, San Patricio, and Colorado counties. The Red Angus Association of America has recorded a total of 2,014 Texas registrants in its herd book.

(4) **Brahman** (Brahma or Zebu). It is ironic that of the state's newest immigrants, the most significant thus far is the world's oldest breed. The Brahman has persisted in India for some 4,000 years, having continually endured the most adverse conditions Asia could provide. This was a fact of considerable interest to Texas cattlemen who frequently witnessed their fine British beef animals perish as a consequence of nature's worse moments.

Thus, it was in 1885 that two Texas ranchers, J. M. Frost and his partner Albert Montgomery, dispatched a herdsman to Calcutta with instructions to purchase two bulls. Since that time, there has been a steady infusion of Brahman blood into the Texas cattle population. Extensive use of pure blood Brahman for beef production has not been practiced in Texas. More commonly they have been crossed with meatier but less resistant animals, especially those of British origin. Brahmans participated in the creation of the Santa Gertrudis, Brangus, Charbray, and Beefmaster. As was anticipated, each of these products inherited those Brahman features which facilitate the endurance of nature's adversities. These characteristics are (1) sweat glands throughout the body contributing to heat tolerance, (2) movable membranes under the skin allowing them to dislodge insects, (3) glands which secrete an oily substance which repels insects, and (4) heavy black pigmentation around the eyes protecting them from irritations often resulting in eye cancer. The latter infirmity may seem trivial but it is both a serious and extensive problem among some of the European breeds.

Several attributes differentiate the Brahman from other breeds of cattle. It features a distinct hump over the shoulders and has an excess of loose skin under the throat. The most prevalent color is gray.

Today, Brahman blood flows through the veins of every other bovine on the surface of the earth. In Texas, those characteristics attributable to the Brahman are in greatest demand throughout the state's coastal area. The largest purebred herds have been amassed in Harris, Wharton, Shelby, Liberty, and Navarro counties. Likewise, the Brahman crosses are most prevalent through those counties bounding the Gulf.

The American Brahman Breeders Association has recorded average registrations in Texas at a rate in excess of 8,000 annually since the organization's inception 1924. The 1960 figure was reported at 7,144.

(5) **Charolaise** (originated in the Province of Charolais in central France) Normally white or cream colored, this breed has a slight hump over the shoulder, though not nearly as prominent as that of the Brahman.

The story of this French descendant is somewhat analogous to that of the Brahman. The Charolaise migration to this hemisphere began in the early 1900's, landing first in Mexico and subsequently emerging in Texas. Both the Charolaise and the Brahman are near-white in color and each has been utilized extensively for it particular characteristics in cross breeding. Yet where Brahman blood provides resistance, the Charolaise furnishes bulk. The American Charolaise Breeders Association exemplifies their animals' growth ability by citing weights at weaning up to 800 pounds and three- to four-year-old competition steers which often exceed 3,100 pounds. To date, the most notable offspring of a Charolaise cross has been the Charbray—produced from a union with the Brahman.

The American-International Charolais Association reports that representatives of their breed are most numerous throughout the Gulf Coast, the Houston market region and Central Texas. Few Charolais have migrated as far west as the Pecos or San Angelo area or into the Panhandle. Some of the larger herds have been established in Harris, Hidalgo, Hays, Waller, and Bosque counties. The Charolais herd book includes at present the names of approximately 8,000 breed representatives residing in Texas.

(6) **Santa Gertrudis** (named after the Spanish land grant where it was created). The longhorn is not the only bovine to which Texans bestow a sentimental interest. While the longhorn may maintain a symbolic pinnacle, the Santa Gertrudis represents a Texas achievement entirely unique in the development of this country's cattle industry.

Of the myriad of species produced in the United States through cross breedings, the Santa Gertrudis was the first pure breed developed in America.

Texas history boasts of many great ranches, XIT, 6666, Waggoner, LIT, SMS, Matador, etc., but it is the King Ranch which has received the most attention. The reason is twofold: it is the state's largest ranch (nearly a million acres) and second, it is there the Santa Gertrudis was designed and subsequently produced.

The evolution of the King Ranch cattle population coincides with that of most other Texas cattle empires. Until about 1880, the ranch's founder, Captain Richard King, ran longhorns. Yet conditions were growing more conducive to the use of meatier European breeds. In response, the Shorthorn was brought in, but while the meat quality was enhanced, it was recognized that cattle accustomed to northern climates could not be expected to thrive in semitropical South Texas. The logical reaction—use Brahman blood. It was this decision which inaugurated the creation of the Santa Gertrudis. Yet the desired quotient was not attained until 1920, the year in which "Monkey" was born. "Monkey" has the distinction of being the foundation sire of the Santa Gertrudis breed, which is to say every member of the breed is his descendant. The formula by which he was obtained, 3/8 Brahman and 5/8 Shorthorn, has proven itself to be both stable and enduring. Infrequently polled, these Texas natives are a solid cherry red in color and manifest Brahman features including considerable dewlap, loose hide and large, semi-pendulant ears.

Of the 627 Santa Gertrudis herds in Texas, aside from the King Ranch, the five largest are in Kenedy, Kleberg, Jim Wells and Uvalde counties. The Santa Gertrudis Breeders International reports that as of March 31, 1961 a total of 88,224 head of cattle had been presented for classification in Texas. The number for last year was approximately 10,000.

(7) **Charbray**. As the name implies, the source of Charbray blood is Charolaise and Brahman. The American Charbray Association specifies that a charbray must contain between 1/8 and 1/4 part Brahman to qualify for registration. With this inheritance, the Charbray's appearance more nearly approaches the Charolaise with the exception of the excessive amount of loose skin under the neck.

Though the parents of the Charbray had doubtlessly been crossed before, the founding of the "breed" is attributed to a pair of Texans, Harl Thomas of Willacy County and Fred Turner of Hidalgo County. They initiated their experiments some 20 years ago and were soon shipping speciments to all parts of the country.

The American Charbray Breeders' Association reveals that at present approximately 8,000 Texas Charbrays are listed in their herd book. The majority of this number are assembled in the Houston area and throughout the Rio Grande Valley, through sizable herds spot the brush country of South and Central Texas.

(8) **Brangus**. The composition of the Brangus, like that of the Santa Gertrudis, is 3/8 Brahman and 5/8 Britisher. However, the Brangus has employed Angus blood where Santa Gertrudis used Shorthorn. Black and hornless, these animals produce a silhouette very much like that of its Indian parent.

Though the initial attempts to establish such a combination date back to 1914, Brangus has not enjoyed the popularity in Texas that it has in several other states. Nevertheless, Brangus comes equipped with features comparable in many respects to its King Ranch counterpart. Brangus breeders in Texas seem enthusiastic and well satisfied with the performances of their herds. Interest in this breed appears to be experiencing a significant expansion.

The initial use of Brangus cattle in Texas is claimed by the Essar Ranch of Wilson County in 1940. In the subsequent period, some 6,000 Brangus have populated the state, principally in South and South Central Texas, the Red River Valley and the Gulf Coast area. The largest individual herds, as calculated by the Texas Brangus Breeders Association, prevail in the following counties: Concho, Frio, Washington, Orange, Blanco, and Fannin.

(9) **Beefmaster** (a trade mark copyrighted through the U. S. Patent office). Perhaps the least orthodox of the newer experimental models is this creation of Tom Lasater, originally of Falfurrias. Beefmaster is more appropriately labelel a philosophy than a breed. Its adherents profess allegiance to nothing save efficient beef production; for the most part characteristics, including color as such are considered superfluous. While the Beefmaster originated as a three-way cross between Brahman (1/2), Hereford (1/4), and Shorthorn (1/4), little significance is given to the precise composition.

The array of animals comprising the typical Beefmaster herd would appear to a novice as being as homogeneous as the inhabitants of a city dog pound. Indeed, Lasater was quoted some years ago as saying that he didn't even care whether an animal had a head or not. Continuing on the subject of conformation, he reasoned, "The only thing cattle need a head for is to take in food and water and emit a mating call." In short, his concern is restricted to those portions of an animal which are edible. Hence, the one distinct feature of all Beefmasters—in height, length, and width—they are big. The Beefmaster's color ranges from red with white extensions and spots to dun, brown, or reddish-brown.

In the Beefmaster, Lasater is publicizing a criteria for breeding which numerous Texas cattlemen have been following since the inception of the cattle industry. Specifically, Beefmasters are bred for (1) weight, (2) fertility, (3) disposition, (4) conformation, (5) thriftiness, and (6) milk production.

Summary

In summary, these are the principal sources of the blood in the Texas beef cattle population. Obviously, those animals registered in a particular breed represent only a small fraction of the total number which are composed predominantly of that blood line. However, a correlation does exist between the number registered and the portion of the total population closely related. Continuing this line of logic, the following approximations have been derived for Texas: Hereford predominant in 60–70%, Brahman in 15–18%, Angus in 10–12%, Shorthorn in 5–8%, and Charolaise in the remainder. Santa Gertrudis, Brangus, Beefmaster and Charbray are included under those breeds from which they drew most heavily.

FOR TEXAS: IMPROVED BUILDING BLOCKS

By JAMES J. KELLY

Immediately after World War II, there were more than 400 concrete block plants operating in Texas—most of them "backyard" operations. The shortage of construction materials and the huge postwar demand enabled many individuals to establish small plants that required little capital investment or experience. At that time, there were only a few concrete masonry manufacturers in Texas equipped and capable of producing quality materials.

The industry of today has assumed an entirely different complexion. The characteristics of the market during the late forties are no longer existent. A concrete masonry manufacturer now finds it impossible to operate on a shoestring and conform to the performance requirements imposed by the industry as a reaction to the demands of architects and builders. As a consequence, few of the poorly equipped plants which flourished during the period immediately following World War II still persist.

The industry is now typified by the large, quality-conscious plant boasting precision facilities and well-trained personnel. The 65 installations listed in the 1961 *Directory of Texas Manufacturers* represent investments ranging from a minimum of $150,000 to a figure frequently in excess of $500,000. Aggregate employment in these plants approaches 1,000 persons, with the number of employees in individual operations varying from half a dozen to slightly under 200. Jointly, the industry's participants contribute over $4 million to the state's annual payroll. Moreover, these manufacturers during the past year expanded their operations through the purchase of over $6 million worth of new equipment and facilities.

The Product

Appropriately termed concrete masonry are block, brick, or tile building units molded from concrete and laid by masons in the wall. The formula utilized in the concrete mixture varies with the purpose for which the final unit is intended, but is basically composed of portland cement, water, and aggregate. Aggregate includes such materials as sand, pebbles, crushed stone, cinders, expanded shale, clay, or slag.

The concrete block has been plagued by an unfortunate inheritance. While a strategic component in building and construction, the practices of many block manufacturers during the formative years of the industry resulted in the production of material frequently of intolerable quality. This negligence with regard to specifications is attributable to inadequate means of assuring consistent material composition, improper curing methods, and a lack of uniformity in dimensions.

The Manufacturing Process

In an effort to eradicate the reputation for low quality, the concrete block industry has directed its attention toward alleviating these former shortcomings. The modern concrete block has been created and controlled through an electronic process which insures precision. In many Texas plants, uniformity in size is achieved through auto-

Local Business Conditions

As a reader's guide to better utility of retail sales data, an average per cent change from the preceding month has been computed for each month of the year. This percent change is marked with a dagger (†) following that figure. The next percent change represents the actual change from the preceding month. A large variation in the normal seasonal from the actual figure represents an abnormal month. This third percent change is the percent change for the identical period the preceding year showing the change between the two years. Postal receipt information which is marked by an asterisk (*) indicates cash receipts received during the four-week postal accounting period ending August 18, 1961, and the percent changes from the preceding period and the comparable period in the previous year. Annual postal data are for 13 four-week periods falling closest within 1959 and 1960 calendar years. Changes less than one-half of one percent are marked with a double asterisk (**). Houston and Waco retail sales information are reported in cooperation with the University of Houston Center for Research in Business and Economics and Baylor Bureau of Business Research, respectively. End-of-month deposits as reported represent money on deposit in individual demand deposit accounts on the last day of the month. All population figures are final 1960 census data. Figures under Texarkana with the following symbol (§) are for Texarkana, Texas, only.

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
ABILENE (pop. 90,368)			
Retail sales	+ 3†	+ 13	+ 12
Apparel stores	+ 14†	+ 32	— 1
Automotive stores	+ 1†	+ 8	+ 20
Drug stores	+ 1†	— 1	— 2
General merchandise stores	+ 9†	+ 18	+ 6
Lumber, building material, and hardware stores	+ 1†	+ 3	+ 20
Postal receipts* $	92,986	— 6	— 4
Building permits, less federal contracts $	1,992,407	+108	+ 79
Bank debits (thousands) $	98,470	+ 2	+ 1
End-of-month deposits (thousands) ‡ $	66,622	— 3	+ 1
Annual rate of deposit turnover	17.5	+ 5	— 6
Employment (area)	36,000	**	+ 13
Manufacturing employment (area)	3,880	— 3	+ 20
Percent unemployed (area)	6.3	— 5	+ 7
ALICE (pop. 20,861)			
Retail sales			
Lumber, building material, and hardware stores	+ 1†	+ 8	+ 27
Postal receipts* $	14,873	— 20	+ 9
Building permits, less federal contracts $	352,878	+326	+255

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
ALPINE (pop. 4,740)			
Postal receipts* ..... $	3,983	— 24	+ 1
Building permits, less federal contracts $	12,000	— 14	— 73
Bank debits (thousands) ..... $	2,717	+ 10	+ 20
End-of-month deposits (thousands) ‡ ... $	3,543	+ 5	+ 4
Annual rate of deposit turnover	9.4	+ 4	+ 15
AMARILLO (pop. 137,969)			
Retail sales	+ 3†	+ 6	— 11
Apparel stores	+ 14†	+ 13	— 23
Automotive stores	+ 1†	— 10	— 14
Furniture and household appliance stores	+ 1†	+ 3	— 7
Lumber, building material, and hardware stores	+ 1†	+ 32	— 23
Postal receipts* ..... $	174,215	— 6	— 6
Building permits, less federal contracts $	6,130,541	+100	+102
Bank debits (thousands) ..... $	235,875	— 3	+ 8
End-of-month deposits (thousands) ‡ ... $	114,363	— 5	+ 2
Annual rate of deposit turnover	24.1	**	+ 5
Employment (area)	51,800	**	— 3
Manufacturing employment (area)	4,820	— 12	— 20
Percent unemployed (area)	5.2	+ 2	+ 58
ANDREWS (pop. 11,135)			
Postal receipts* ..... $	6,851	+ 5	+ 3
Building permits, less federal contracts $	131,765	— 12	+ 58
Bank debits (thousands) ..... $	4,999	— 6	.....
End-of-month deposits (thousands) ‡ ... $	7,705	+ 4	.....
Annual rate of deposit turnover	7.9	— 9	.....
ARANSAS PASS (pop. 6,956)			
Postal receipts* ..... $	4,064	— 22	— 12
Building permits, less federal contracts $	17,850	— 63	— 40
Bank debits (thousands) ..... $	5,240	+ 9	— 13
End-of-month deposits (thousands) ‡ ... $	4,849	+ 4	+ 9
Annual rate of deposit turnover	13.2	+ 7	— 20
ARLINGTON (pop. 44,775)			
Retail sales			
Apparel stores	+ 14†	— 33	+ 1
Lumber, building material, and hardware stores	+ 1†	+ 20	+ 54
Postal receipts* ..... $	38,262	— 9	+ 8
Building permits, less federal contracts $	6,058,568	+279	+741
Bank debits (thousands) ..... $	33,607	+ 8	.....
End-of-month deposits (thousands) ‡ ... $	19,771	— 2	.....
Annual rate of deposit turnover	20.2	+ 10	.....
Employment (area)	215,300	**	+ 3
Manufacturing employment (area)	51,800	— 3	— 4
Percent unemployed (area)	5.9	**	+ 31
ATHENS (7,086)			
Postal receipts* ..... $	7,431	+ 3	+ 17
Bank debits (thousands) ..... $	8,421	+ 6	+ 23
End-of-month deposits (thousands) ‡ ... $	7,494	— 7	+ 4
Annual rate of deposit turnover	13.0	+ 12	+ 15
BAY CITY (pop. 11,656)			
Retail sales			
Automotive stores	+ 1†	+ 6	+ 8
Drug stores	+ 1†	+ 7	+ 9
Postal receipts* ..... $	10,756	— 7	+ 3
Bank debits (thousands) ..... $	13,690	+ 17	+ 17
End-of-month deposits (thousands) ‡ ... $	19,307	+ 1	+ 15
Annual rate of deposit turnover	8.6	+ 18	+ 9

Improved Building Blocks . . .

matic, self-adjusting control of feeding rate, vibration, and compaction. The block machine, where the product is originated, is capable of producing more than 100 sizes and shapes. From here the blocks are transferred to the curing racks for placing in low-pressure steam kilns, the initial phase of the curing process. The block is subjected to eight hours in the kiln prior to being submitted to the autoclave. In the autoclave system, the semi-cured block undergoes controlled heat, humidity, and pressure. This final curing assures a reduction of potential absorption and shrinkage, and improves stability generally.

Further, virtually all the major manufacturers either own or have access to laboratory facilities where periodic tests may be performed to discover any deviations from the specifications to which the company proports to conform. The laboratory is, in addition, utilized to study new materials for use in the concrete mix.

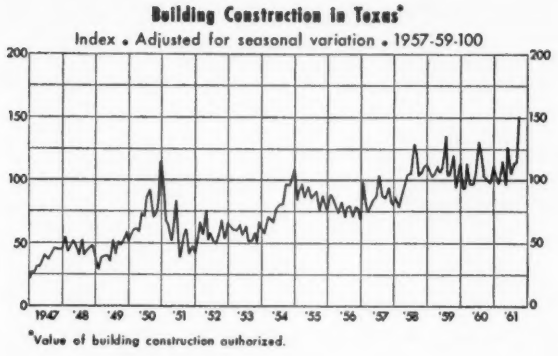
CONCRETE BRICK AND BLOCK

MANUFACTURING PLANTS IN TEXAS

Source: 1961 Directory of Texas Manufacturers.

Sizes and Types of Blocks

The standard size of the concrete block is 8x8x16 inches, though they are produced in a myriad of variations to cater to design and construction needs. This standard unit in a hollow load-bearing form will weigh approximately 40 to 50 pounds when made with heavyweight aggregate such as sand, gravel, crushed stone, or air-cooled slag. However, the weight may be reduced through the use of lightweight aggregates. The most common materials in the latter category are coal cinders, expanded shale, clay, or slag, and natural lightweight materials such as volcanic


Building Construction in Texas*
Index • Adjusted for seasonal variation • 1957-59-100
200
150
100
50
0
1947 '48 '49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 '60 '61
*Value of building construction authorized.

Improved Building Blocks . . .

cinders, pumice, and scoria. Lightweight concrete blocks, normally averaging between 25 and 35 pounds, have been found most useful in the construction of buildings where weight becomes a crucial matter, and where additional cost associated with the lightweight aggregates is justified. Likewise, the lighter weight aggregates provide up to 50% greater insulation and improved acoustical properties. In projects where such characteristics are of no consequence, heavy but cheaper ingredients such as sand or gravel are more appropriate. However, lightweight aggregates are comprising an increasingly great majority of the blocks produced.

The hollow block, previously referred to, implies the existence of a hollow core area in the unit which comprises at least 25% of the gross area, though the average unit will be from 40% to 50% cored. The solid block, as defined by the American Society for Testing Materials, may have a cored space of no greater than 25% of the gross area of the unit.

Quality specifications originate and are imposed at numerous levels. These are, principally, building code requirements as well as the specifications of the American Society for Testing Materials, Underwriters' Laboratories and the Master Specifications of the United States Government. With regard to the degree of endurance demanded, the blocks fall into two categories depending upon the purpose for which they are to be used. They may be designated (1) load-bearing units, in which case they must sustain between 700 and 1000 pounds per square inch in compression, or (2) non-load-bearing (partition) units which are normally exempted from strength requirements. In addition, blocks used in walls exposed to the weather or to soil are required to remain within certain limits of absorption expressed in weight or percentage of water.

Upon emerging from this maze of tests, little chance remains that the block will fail to maintain its endurance over an extended period of time. As a result, the concrete masonry industry has for the most part succeeded in defending itself against the vulnerabilities which formerly handicapped it.

Improving Markets and Uses

Through extending the applications, upgrading the quality, and providing the architect with a varied assortment of colors and sizes, the concrete block manufacturers have

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
AUSTIN (pop. 186,545)			
Retail sales	+ 3†	+ 10	+ 5
Apparel stores	+ 14†	— 4	**
Furniture and household appliance stores	+ 1†	+ 43	+ 9
Lumber, building material, and hardware stores	+ 1†	+ 13	+ 18
Postal receipts*	$ 388,960	+ 11	+ 6
Building permits, less federal contracts	$ 6,353,813	+ 40	+ 86
Bank debits (thousands)	$ 262,607	+ 25	+ 16
End-of-month deposits (thousands)‡	$ 150,876	— 1	+ 3
Annual rate of deposit turnover	20.8	+ 28	+ 11
Employment (area)	78,000	— 1	+ 5
Manufacturing employment (area)	5,470	— 7	— 12
Percent unemployed (area)	4.6	— 8	+ 28
BAYTOWN (pop. 28,159)			
Postal receipts*	$ 23,869	+ 3	**
Building permits, less federal contracts	$ 632,149	+ 31	+ 50
Bank debits (thousands)	$ 22,138	+ 1	+ 8
End-of-month deposits (thousands)‡	$ 22,407	+ 2	+ 10
Annual rate of deposit turnover	12.0	— 1	**
Employment (area)	517,300	+ 1	+ 3
Manufacturing employment (area)	93,800	— 1	— 2
Percent unemployed (area)	4.7	— 10	+ 9
BEAUMONT (pop. 119,175)			
Retail sales	+ 3†	+ 20	+ 9
Apparel stores	+ 14†	+ 30	+ 1
Automotive stores	+ 1†	+ 13	+ 10
Food stores	+ 1†	+ 5	— 2
Furniture and household appliance stores	+ 1†	+ 49	+ 18
General merchandise stores	+ 9†	+ 41	+ 9
Lumber, building material, and hardware stores	+ 1†	+ 14	+ 10
Postal receipts*	$ 110,135	— 1	**
Building permits, less federal contracts	$ 1,161,158	+ 32	— 64
Bank debits (thousands)	$ 165,296	— 5	+ 3
End-of-month deposits (thousands)‡	$ 98,301	**	+ 2
Annual rate of deposit turnover	20.2	— 4	+ 1
Employment (area)	107,500	**	+ 1
Manufacturing employment (area)	34,030	— 2	— 1
Percent unemployed (area)	7.0	— 19	+ 8
BEEVILLE (pop. 13,811)			
Retail sales			
Furniture and household appliance stores	+ 1†	— 3	+ 1
Postal receipts*	$ 10,581	+ 12	**
Building permits, less federal contracts	$ 123,550	+257	+306
Bank debits (thousands)	$ 10,115	+ 2	— 1
End-of-month deposits (thousands)‡	$ 13,097	+ 2	+ 2
Annual rate of deposit turnover	9.4	— 2	— 2
BELLAIRE (pop. 19,872)			
Postal receipts*	$ 31,551	+ 5	.....
Building permits, less federal contracts	$ 30,810	— 15	— 89
Bank debits (thousands)	$ 13,319	+ 7	.....
End-of-month deposits (thousands)‡	$ 8,406	**	.....
Annual rate of deposit turnover	19.0	+ 6	.....
Employment (area)	517,300	+ 1	+ 3
Manufacturing employment (area)	93,800	— 1	— 2
Percent unemployed (area)	4.7	— 10	+ 9

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
BIG SPRING (pop. 31,230)			
Retail sales			
Lumber, building material, and hardware stores	+ 1†	+ 29	+ 26
Postal receipts*	$ 28,621	— 13	+ 7
Building permits, less federal contracts	$ 194,480	— 39	— 42
Bank debits (thousands)	$ 38,811	+ 1	••
End-of-month deposits (thousands)‡	$ 25,472	+ 1	••
Annual rate of deposit turnover	18.3	+ 3	+ 1
BISHOP (pop. 3,722)			
Postal receipts*	$ 2,583	— 23	+ 16
Building permits, less federal contracts	$ 44,200	.....	+ 32
Bank debits (thousands)	$ 3,291	— 2	+ 9
End-of-month deposits (thousands)‡	$ 3,281	+ 15	+ 13
Annual rate of deposit turnover	12.9	— 14	— 2
BRADY (pop. 5,338)			
Postal receipts*	$ 4,198	+ 4	— 2
Building permits, less federal contracts	$ 82,170	+217	+1026
Bank debits (thousands)	$ 5,242	+ 10	+ 25
End-of-month deposits (thousands)‡	$ 7,407	+ 2	+ 7
Annual rate of deposit turnover	8.6	+ 9	+ 19
BRENHAM (pop. 7,740)			
Postal receipts*	$ 6,865	— 4	+ 2
Building permits, less federal contracts	$ 119,935	+ 58	+136
Bank debits (thousands)	$ 8,496	— 2	+ 5
End-of-month deposits (thousands)‡	$ 11,769	— 1	••
Annual rate of deposit turnover	8.6	— 2	+ 6
BROWNSVILLE (pop. 48,040)			
Retail sales	+ 3†	+ 1	— 7
Automotive stores	+ 1†	— 5	— 22
Lumber, building material, and hardware stores	+ 1†	+ 9	+ 55
Postal receipts*	$ 26,210	— 17	— 8
Building permits, less federal contracts	$ 337,057	+ 97	+155
Bank debits (thousands)	$ 47,193	+ 29	— 14
End-of-month deposits (thousands)‡	$ 27,707	+ 53	+ 42
Annual rate of deposit turnover	24.7	+ 5	— 32
BROWNWOOD (pop. 16,974)			
Retail sales	+ 3†	+ 9	+ 7
Apparel stores	+ 14†	+ 40	+ 13
Automotive stores	+ 1†	— 4	+ 4
Furniture and household appliance stores	+ 1†	+ 41	— 8
Postal receipts*	$ 21,495	— 10	— 2
Building permits, less federal contracts	$ 616,562	— 11	+ 11
Bank debits (thousands)	$ 16,136	+ 9	+ 11
End-of-month deposits (thousands)‡	$ 13,027	+ 2	+ 4
Annual rate of deposit turnover	15.0	+ 9	+ 8
BRYAN (pop. 27,542)			
Retail sales	+ 3†	+ 6	+ 10
Automotive stores	+ 1†	+ 1	+ 20
Lumber, building material, and hardware stores	+ 1†	+ 14	+ 4
Postal receipts*	$ 27,740	+ 27	+ 28
Building permits, less federal contracts	$ 659,325	+208	+155
Bank debits (thousands)	$ 24,933	— 1	.....
End-of-month deposits (thousands)‡	$ 16,098	••	.....
Annual rate of deposit turnover	18.6	+ 1	.....
CALDWELL (pop. 2,204)			
Postal receipts*	$ 2,021	— 11	— 8
Bank debits (thousands)	$ 2,196	+ 8	+ 10
End-of-month deposits (thousands)‡	$ 3,663	+ 1	+ 1
Annual rate of deposit turnover	7.2	+ 9	+ 9

Improved Building Blocks . . .

generated a market in Texas which is estimated to be several times as great as it was fifteen years ago. Annual production for the state has reached 40 million units during the past years.

Primary residential and commercial applications of the various concrete masonry products are in the construction of the following:

1. Exterior load-bearing walls
2. Interior load-bearing walls
3. Fire walls, party walls, curtain walls
4. Partition and panel walls
5. Backing for brick, stone, stucco and other facings
6. Fireproofing over steel structural members
7. Firesafe walls around stair wells, elevators and other enclosures
8. Piers, pilasters, columns
9. Retaining walls and garden walls
10. Chimneys and fireplaces (indoor and outdoor)
11. Concrete floor units

The concrete block is one of the fastest growing material components in homebuilding. Aside from its relative economy, concrete masonry affords numerous characteristics attractice to the prospective home owner. Foremost, perhaps, is masonry's ability to withstand fire. Of extreme significance is the fact that concrete masonry maintains its load-bearing ability after as well as during severe fire exposure. A quality which will be recognized as being particularly noteworthy to the coastal inhabitants, concrete blocks, properly laid, have been found extremely resistant to severe wind and rain storms-even hurricanes.

ESTIMATED VALUE OF BUILDING AUTHORIZED

Source: Bureau of Business Research in cooperation with the Bureau of the Census, U. S. Department of Commerce

Classification	Aug 1961 (thousands of dollars)	Jan-Aug 1961 (thousands of dollars)	Percent change: Aug 1961 from July 1961	Percent change: Jan-Aug 1961 from Jan-Aug 1960
ALL PERMITS	148,149	949,481	+ 26	+ 6
New construction	132,346	844,344	+ 24	+ 5
Residential (housekeeping)	73,228	477,189	+ 16	+ 5
One-family dwellings	66,032	420,963	+ 27	— 1
Multiple-family dwellings	7,196	56,226	— 37	+ 93
Nonresidential buildings	59,118	367,155	+ 37	+ 5
Nonhousekeeping buildings (residential)	3,725	17,539	+ 13	+ 71
Amusement buildings	958	6,738	+ 47	+ 2
Churches	3,155	24,313	— 6	— 23
Industrial buildings	3,022	22,088	— 26	+ 24
Garages (commercial and private)	455	4,432	— 4	— 45
Service stations	1,276	7,605	+ 25	+ 3
Hospitals and institutions	9,003	41,468	+399	+ 39
Office-bank buildings	8,159	59,842	+ 25	— 12
Works and utilities	766	16,857	+ 26	+ 9
Educational buildings	7,765	65,691	+ 40	+ 4
Stores and mercantile buildings	12,410	77,274	— 1	+ 8
Other buildings and structures	8,424	23,308	+175	+ 28
Additions, alterations, and repairs	15,803	105,139	+ 40	+ 15

† As defined in 1960 Census.

Improved Building Blocks . . .

Schools, office buildings, churches, in fact all forms of commercial and industrial construction have taken advantage of recent improvements and innovations in the concrete block. These structures, when utilizing such materials, are assured superb acoustical properties. While any material absorbing sound to the extent of 15% is considered an acoustical aid, concrete blocks of lightweight aggregates absorb about 50%. Further, the block provides a high degree of insulation, thus minimizing both heating and cooling expense.

Perhaps the most notable undertaking by block manufacturers in extending the use of their product have been efforts to improve the physical appearance. In years past, the concrete block had been thought of by most interior decorators as inappropriate for any purpose in which the crude block would be visible. Thus, it was virtually always necessary to use various facings, an expensive and time consuming process. Needless to say, this had been detrimental to the block market.

In response, the industry has perfected methods of making the concrete units more acceptable in appearance. Concrete blocks are manufactured with color permanently mixed throughout the unit. Block shapes have been experimented with, and three-dimensional patterns can now be designed into a wall. A new method has been devised whereby a glazed facing is permanently fused to the face of the block unit.

The glazed facing provides a flat surface in satin finishes which is resistant to chemicals, abrasion and impact. Moreover, the facing is permanently imbedded so that it cannot be removed without completely destroying the block. While being offered in as many as 46 colors, the

CREDIT RATIOS IN DEPARTMENT AND APPAREL STORES

Classification	Number of reporting stores	Ratio of credit sales to net sales* Aug 1961	Ratio of credit sales to net sales* Aug 1960	Ratio of collections to outstandings† Aug 1961	Ratio of collections to outstandings† Aug 1960
ALL STORES	50	69.5	70.1	30.2	31.3
BY CITIES					
Austin	3	71.5	69.9	42.1	41.3
Cleburne	3	55.9	54.1	22.2	22.8
Dallas	5	82.6	83.2	38.2	38.5
Houston	3	66.2	66.7	22.9	26.0
San Antonio	4	75.3	77.7	35.4	36.0
Waco	4	57.3	58.8	39.9	41.1
BY TYPE OF STORES					
Department stores (over $1 million)	14	70.1	70.5	28.3	29.8
Department stores (under $1 million)	16	50.7	49.2	39.6	39.2
Dry goods and apparel stores	4	74.6	75.3	56.8	55.2
Women's specialty shops	9	70.0	72.0	35.7	35.3
Men's clothing stores	7	70.9	71.3	41.5	40.3
BY VOLUME OF NET SALES					
$1,500,000 and over	18	70.7	71.4	29.7	30.9
$500,000 to $1,500,000	11	58.6	58.5	40.2	40.5
$250,000 to $500,000	10	47.5	45.4	40.9	39.1
Less than $250,000	11	51.4	49.3	41.1	36.5

* Credit sales divided by net sales.
† Collections during the month as a percent of accounts unpaid on the first of the month.

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
CAMERON (pop. 5,640)			
Postal receipts*	$ 3,471	— 32	**
Building permits, less federal contracts	$ 29,550	— 10	+ 95
Bank debits (thousands)	$ 4,236	+ 2	— 9
End-of-month deposits (thousands) ‡	$ 4,944	+ 4	+ 9
Annual rate of deposit turnover	10.5	+ 1	— 18
CARROLLTON (pop. 4,242)			
Postal receipts*	$ 3,665	.....	.....
Building permits, less federal contracts	$ 333,400	— 65	+ 10
Bank debits (thousands)	$ 3,874	+ 2	+ 15
End-of-month deposits (thousands) ‡	$ 2,418	— 6	+ 12
Annual rate of deposit turnover	18.7	+ 6	— 3
CHILDRESS (pop. 6,399)			
Postal receipts*	$ 4,400	— 13	— 4
Building permits, less federal contracts	$ 32,425	+ 44	+ 53
Bank debits (thousands)	$ 5,342	+ 11	.....
End-of-month deposits (thousands) ‡	$ 5,620	— 8	.....
Annual rate of deposit turnover	10.9	+ 16	.....
CISCO (pop. 4,499)			
Postal receipts*	$ 4,062	— 5	+ 14
Bank debits (thousands)	$ 3,079	+ 3	— 14
End-of-month deposits (thousands) ‡	$ 3,851	+ 1	— 1
Annual rate of deposit turnover	9.6	+ 1	— 14
CLEBURNE (pop. 15,381)			
Postal receipts*	$ 13,995	+ 2	+ 3
Building permits, less federal contracts	$ 69,842	— 17	+ 10
Bank debits (thousands)	$ 9,852	— 8	.....
End-of-month deposits (thousands) ‡	$ 11,478	+ 2	+ 14
Annual rate of deposit turnover	10.4	— 7	.....
Employment (area)	446,800	**	+ 3
Manufacturing employment (area)	95,500	— 3	+ 2
Percent unemployed (area)	5.0	— 4	+ 14
CLUTE CITY (pop. 4,501)			
Postal receipts*	$ 1,743	— 16	+ 6
Building permits, less federal contracts	$ 52,955	+210	+141
Bank debits (thousands)	$ 1,619	+ 13	+ 5
End-of-month deposits (thousands) ‡	$ 1,319	+ 3	+ 14
Annual rate of deposit turnover	15.0	+ 9	— 9
COLLEGE STATION (pop. 11,396)			
Postal receipts*	$ 15,284	+ 10	— 9
Bank debits (thousands)	$ 3,571	+ 1	+ 10
End-of-month deposits (thousands) ‡	$ 2,616	+ 2	+ 12
Annual rate of deposit turnover	16.6	— 1	+ 5
COLORADO CITY (pop. 6,457)			
Postal receipts*	$ 5,059	— 13	+ 5
Bank debits (thousands)	$ 4,462	— 12	+ 7
End-of-month deposits (thousands) ‡	$ 6,259	— 2	**
Annual rate of deposit turnover	8.4	— 16	+ 5
COPPERAS COVE (pop. 4,567)			
Postal receipts*	$ 1,752	— 38	— 13
Building permits, less federal contracts	$ 90,535	— 54	+147
Bank debits (thousands)	$ 1,084	+ 14	+ 39
End-of-month deposits (thousands) ‡	$ 957	+ 38	+ 41
Annual rate of deposit turnover	15.8	— 3	+ 15
CORSICANA (pop. 20,344)			
Postal receipts*	$ 16,802	+ 2	+ 12
Building permits, less federal contracts	$ 36,450	+ 33	— 16
Bank debits (thousands)	$ 17,220	+ 14	+ 7
End-of-month deposits (thousands) ‡	$ 18,967	**	+ 2
Annual rate of deposit turnover	10.9	+ 15	+ 5

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
CORPUS CHRISTI (pop. 167,690)			
Retail sales		+ 3†	+ 16	+ 1
Apparel stores		+ 14†	+ 16	+ 11
Automotive stores		+ 1†	+ 11	— 8
Nurseries		.....	+ 33	+ 24
Postal receipts*	$	153,556	— 4	— 3
Building permits, less federal contracts	$	7,362,139	+315	+582
Bank debits (thousands)	$	215,718	+ 16	+ 4
End-of-month deposits (thousands)‡	$	112,251	+ 4	+ 3
Annual rate of deposit turnover		23.5	+ 11	+ 1
Employment (area)		64,500	**	— 1
Manufacturing employment (area)		8,670	— 1	**
Percent unemployed (area)		6.9	— 8	+ 38
CRYSTAL CITY (pop. 9,101)			
Postal receipts*	$	2,408	— 30	— 2
Building permits, less federal contracts	$	20,000	+ 98	— 42
Bank debits (thousands)	$	2,158	+ 3	— 14
End-of-month deposits (thousands)‡	$	2,514	**	+ 7
Annual rate of deposit turnover		10.3	+ 2	— 16
DALLAS (pop. 679,684)			
Retail sales		+ 4†	+ 7	— 1
Apparel stores		+ 24†	+ 20	+ 6
Automotive stores		+ 2†	+ 1	+ 3
Eating and drinking places		+ 3†	+ 6	— 6
Florists		— 1†	+ 10	— 5
Furniture and household appliance stores		— 3†	— 8	**
Lumber, building material, and hardware stores		+ 1†	+ 30	+ 25
Nurseries		.....	+ 51	+ 29
Office, store, and school supply dealers		+ 6†	+ 46	+ 23
Postal receipts*	$	2,255,078	+ 8	+ 5
Building permits, less federal contracts	$	18,645,410	+ 1	+ 31
Bank debits (thousands)	$	3,062,777	+ 7	+ 6
End-of-month deposits (thousands)‡	$	1,182,355	— 3	+ 5
Annual rate of deposit turnover		30.5	+ 8	+ 1
Employment (area)		446,800	**	+ 3
Manufacturing employment (area)		95,500	— 3	+ 2
Percent unemployed (area)		5.0	— 4	+ 14
DEER PARK (pop. 4,865)			
Postal receipts*	$	4,238	— 9	— 4
Building permits, less federal contracts	$	68,000	— 84	— 78
Bank debits (thousands)	$	2,977	+ 15	+ 2
End-of-month deposits (thousands)‡	$	1,285	— 21	— 18
Annual rate of deposit turnover		24.5	+ 31	+ 15
Employment (area)		517,300	+ 1	+ 3
Manufacturing employment (area)		93,800	— 1	— 2
Percent unemployed (area)		4.7	— 10	+ 9
DEL RIO (pop. 18,612)			
Retail sales		+ 3†	+ 24	+ 17
Automotive stores		+ 1†	+ 32	+ 25
Lumber, building material, and hardware stores		+ 1†	+ 18	+ 9
Postal receipts*	$	10,331	— 16	— 3
Building permits, less federal contracts	$	30,535	— 19	— 52
Bank debits (thousands)	$	9,794	+ 8	+ 6
End-of-month deposits (thousands)‡	$	13,279	— 4	+ 8
Annual rate of deposit turnover		8.7	+ 7	— 3
DENISON (pop. 22,748)			
Retail sales		+ 3†	+ 12	**
Automotive stores		+ 1†	+ 24	— 2
Drug stores		+ 1†	+ 3	+ 15
Postal receipts*	$	18,719	+ 9	— 16
Building permits, less federal contracts	$	218,909	— 44	— 28
Bank debits (thousands)	$	16,122	— 6	+ 1
End-of-month deposits (thousands)‡	$	17,639	+ 9	+ 18
Annual rate of deposit turnover		11.4	— 9	— 13

Improved Building Blocks . . .

surface never requires repainting or refinishing. Likewise, it has exceptional resistance to temperature, stains, and steam. Close tolerances combine to enable the glazed block to furnish a fine interior for both residential and commercial use.

Builders have come to recognize that the use of the concrete block greatly simplifies wiring and plumbing, enables single-thickness wall structures in many instances and increases nailability, structural strength and, generally, the speed of erection. As a consequence of both its durability and improved appearance, concrete masonry currently constitutes well over two-thirds of the volume of all masonry walls being built today.

No report of concrete brick and block manufacturing in Texas would be complete without a reference to the Texas Concrete Masonry Association. In this industry, as in many others in the building materials manufacturing field, the voluntary association of manufacturers has contributed greatly to the development of the industry in several specific areas. The association, on both state and national levels, has made significant contributions in research for new and improved products and manufacturing techniques. No less important, it is to the association that credit must go for disseminating information and winning public acceptance of new products and uses of the material.

POSTAL RECEIPTS

City	July 22–Aug 18 1961	Percent change: July 22–Aug 18 1961 from June 24–July 21 1961	Percent change: July 22–Aug 18 1961 from July 23–Aug 19 1960
Angleton	$ 4,599	— 34	— 22
Brownfield	9,066	— 19	+ 8
Coleman	5,511	— 10	— 11
Cuero	6,128	+ 31	+ 10
Eagle Pass	5,497	— 19	— 3
El Campo	8,853	— 15	— 2
Freeport	15,090	+ 12	+ 18
Gainesville	11,695	— 7	— 8
Gilmer	4,199	— 18	+ 47
Gonzales	8,357	+ 96	+ 48
Groves	4,566	— 16	— 10
Hillsboro	8,386	+ 3	+ 49
Huntsville	8,200	+ 4	— 13
Hurst	4,967	— 6	+ 35
Irving	23,656	+ 1	— 9
Kenedy	3,598	— 25	+ 2
Kermit	6,693	— 18	+ 6
Kerrville	11,776	— 13	— 2
Kirbyville	3,094	— 16	— 1
La Grange	3,756	— 38	— 11
Lake Jackson	4,725	**	+ 7
Littlefield	5,673	— 16	+ 12
Marlin	6,343	— 2	+ 7
Mineral Wells	10,077	— 11	— 17
Navasota	3,875	— 21	— 2
Pecos	12,086	— 14	+ 12
Pittsburg	3,004	+ 6	+ 4
Port Lavaca	7,056	— 11	— 1
Richardson	18,789	— 17	+ 1
San Juan	1,696	— 18	+ 21
Taft	2,696	— 1	— 14
Yoakum	10,952	+ 13	+ 32

** Change is less than one-half of one percent.

RETAIL STORE LOCATION: A NEW UNKNOWN

By W. T. TUCKER

Professor of Marketing Administration
The University of Texas

A few years ago careful students of marketing knew just about everything that had to be known about retail store location. If you wanted to set up a hardware store, a food store or a women's ready-to-wear shop, all you needed to do was to ask one of the experts to analyze a particular location and he could tell you what your chances of success were. But just about the time that retail store location theory began to look like a science, the lid blew off. Any honest expert would have to admit today that we know a lot less about retail store location than we did in the late forties and early fifties, when the rules had become relatively formal and rigid.

Two factors probably had major roles in collapsing the retail location "science." The first of these was the formalization of location studies. The best practitioners had never really been quite as scientific as they themselves thought. In most cases they evaluated a location *informally* before they ever began their formal analysis, weeding out the really impossible locations and using considerable imaginative power in selecting areas to study. Obviously, when less skilled practitioners used only the formal analysis, they made some serious errors *because they had simply not taken into consideration all of the factors that a real expert used in making his judgment.*

The second factor, and it is a complex one, was the retail revolution that had its first dim start in the supermarket and the hamburger drive-in and has not yet been resolved. Of course, it has been pointed out that this revolution was based on the changing living patterns of the people served by retail stores. The effect was to create new types of stores and even to change the operations of older types so that many of the laws of retail location no longer applied.

In order to understand present location theory it is necessary to look at each of these factors in some detail.

The Failures of Formal Location Theory

Formal location theory was largely based on an analysis of traffic counts, a study of the location of competing stores, an analysis of the potential market, and a consideration of the kind of merchandise the store carried. After such an analysis, a new supermarket was located in an eastern state. The traffic count was high, the people in the surrounding area were largely middle class, and there was no competing supermarket within three miles. Two years after the store was built by a large chain it had still not operated profitably for any week of its existence. What was wrong?

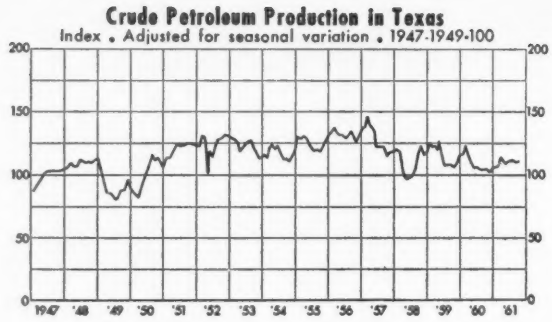
It was rather simple to discover the reasons when someone went to examine the location rather than depending upon reports of field work and local maps. First, the high traffic count was a fraud, in effect, for traffic largely consisted of men driving to or from work or on business between the city and a nearby town of some size. If someone had thought to count only the cars with women in them, the traffic count would have been extremely low for a supermarket location. Second, a large part of the population that,

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
DENTON (pop. 26,844)			
Postal receipts*	$ 27,678	— 6	**
Building permits, less federal contracts	$ 2,989,425	+440	+433
Bank debits (thousands)	$ 19,671	— 12	.....
End-of-month deposits (thousands) ‡	$ 19,548	— 7	.....
Annual rate of deposit turnover	11.6	— 12	.....
Employment (area)	446,800	**	+ 3
Manufacturing employment (area)	95,500	— 3	+ 2
Percent unemployed (area)	5.0	— 4	+ 14
DONNA (pop. 7,522)			
Postal receipts*	$ 2,795	— 18	+ 9
Building permits, less federal contracts	$ 37,200	— 8	+162
Bank debits (thousands)	$ 3,704	+ 29	+ 14
End-of-month deposits (thousands) ‡	$ 3,673	+ 23	+ 59
Annual rate of deposit turnover	13.4	+ 25	— 14
EDINBURG (pop. 18,706)			
Postal receipts*	$ 8,904	— 19	— 4
Building permits, less federal contracts	$ 444,053	+673	+252
Bank debits (thousands)	$ 17,221	+ 23	+ 12
End-of-month deposits (thousands) ‡	$ 8,631	— 7	— 1
Annual rate of deposit turnover	23.0	+ 24	+ 6
EDNA (pop. 5,038)			
Retail sales			
Apparel stores	+ 14†	+ 19	+ 4
Postal receipts*	$ 5,572	+ 12	+ 47
Building permits, less federal contracts	$ 57,681	+139	+ 91
Bank debits (thousands)	$ 4,313	+ 25	+ 5
End-of-month deposits (thousand) ‡	$ 5,897	+ 4	+ 6
Annual rate of deposit turnover	8.9	+ 22	+ 1
ELECTRA (pop. 4,759)			
Postal receipts*	$ 3,899	— 7	+ 13
Bank debits (thousands)	$ 2,395	— 24	— 15
End-of-month deposits (thousands) ‡	$ 3,266	— 15	+ 14
Annual rate of deposit turnover	8.1	— 17	— 27
ENNIS (pop. 9,347)			
Building permits, less federal contracts	$ 275,076	+272	+ 70
Bank debits (thousands)	$ 6,650	— 1	+ 12
End-of-month deposits (thousands) ‡	$ 7,306	+ 7	+ 9
Annual rate of deposit turnover	11.3	— 2	+ 8
FORT WORTH (pop. 356,268)			
Retail sales	+ 3†	+ 12	+ 3
Apparel stores	+ 9†	+ 2	+ 12
Automotive stores	— 1†	+ 8	— 5
Drug stores	+ 1†	+ 4	— 3
Eating and drinking places	+ 3†	+ 1	— 3
Food stores	— 4†	— 4	— 2
Furniture and household appliance stores	+ 16†	+ 48	+ 6
Gasoline and service stations	— 1†	+ 11	— 1
General merchandise stores	+ 21†	+ 31	+ 11
Lumber, building material, and hardware stores	+ 4†	+ 16	+ 10
Postal receipts*	$ 720,872	+ 5	+ 9
Building permits, less federal contracts	$ 2,806,420	— 25	+ 14
Bank debits (thousands)	$ 809,945	**	+ 6
End-of-month deposits (thousands) ‡	$ 377,038	— 2	+ 2
Annual rate of deposit turnover	25.6	+ 2	+ 3
Employment (area)	215,300	**	+ 3
Manufacturing employment (area)	51,800	— 3	— 4
Percent unemployed (area)	5.9	**	+ 31
FORT STOCKTON (pop. 6,373)			
Bank debits (thousands)	$ 5,932	+ 11	.....
End-of-month deposits (thousands) ‡	$ 5,272	+ 4	.....
Annual rate of deposit turnover	13.7	+ 34	.....

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
EL PASO (pop. 276,687)			
Retail sales	+ 3†	+ 23	**
General merchandise stores	+ 9†	+ 33	**
Lumber, building material, and hardware stores	+ 1†	+ 25	+ 4
Postal receipts* $	262,696	— 7	— 3
Building permits, less federal contracts $	5,795,422	+ 9	+ 49
Bank debits (thousands) $	357,328	+ 2	+ 3
End-of-month deposits (thousands)‡ $	166,799	— 1	+ 2
Annual rate of deposit turnover	25.6	+ 2	+ 2
Employment (area)	91,800	**	+ 2
Manufacturing employment (area)	14,000	**	**
Percent unemployed (area)	4.7	— 6	— 10
FREDERICKSBURG (pop. 4,629)			
Retail sales	+ 3†	+ 12	+ 14
Drug stores	+ 1†	+ 3	+ 3
Food stores	+ 1†	+ 3	+ 5
Postal receipts* $	4,975	— 17	+ 9
Building permits, less federal contracts $	353,150	+1223	+333
Bank debits (thousands) $	8,442	+ 5	+ 33
End-of-month deposits (thousands)‡ $	8,748	— 1	+ 6
Annual rate of deposit turnover	11.5	**	+ 25
GALENA PARK (pop. 10,852)			
Postal receipts* $	4,682	+ 10	— 3
Building permits, less federal contracts $	20,500	+ 56	— 25
Bank debits (thousands) $	4,099	+ 2	+ 14
End-of-month deposits (thousands)‡ $	2,645	— 10	.....
Annual rate of deposit turnover	17.6	+ 5	.....
Employment (area)	517,300	+ 1	+ 3
Manufacturing employment (area)	93,800	— 1	— 2
Percent unemployed (area)	4.7	— 10	+ 9
GALVESTON (pop. 67,175)			
Retail sales	+ 3†	+ 21	+ 12
Apparel stores	+ 14†	+ 23	— 2
Food stores	+ 1†	— 1	**
Furniture and household appliance stores	+ 1†	+ 51	+ 51
Postal receipts* $	80,576	— 1	+ 7
Building permits, less federal contracts $	381,310	— 56	+ 93
Bank debits (thousands) $	101,831	+ 7	+ 11
End-of-month deposits (thousands)‡ $	59,654	— 3	+ 1
Annual rate of deposit turnover	20.2	+ 12	+ 10
Employment (area)	52,600	— 1	+ 4
Manufacturing employment (area)	10,660	— 1	— 1
Percent unemployed (area)	9.1	+ 6	+ 32
GARLAND (pop. 38,501)			
Postal receipts* $	34,364	+ 20	+ 42
Building permits, less federal contracts $	2,293,137	+ 67	+ 14
Bank debits (thousands) $	27,969	+ 7	+ 20
End-of-month deposits (thousands)‡ $	14,855	— 9	+ 2
Annual rate of deposit turnover	21.5	+ 8	+ 11
Employment (area)	446,800	**	+ 3
Manufacturing employment (area)	95,500	— 3	+ 2
Percent unemployed (area)	5.0	— 4	+ 14
GATESVILLE (pop. 4,626)			
Postal receipts* $	4,332	+ 10	+ 3
Bank debits (thousands) $	4,934	+ 11	— 4
End-of-month deposits (thousands)‡ $	5,446	+ 3	+ 14
Annual rate of deposit turnover	11.0	+ 9	— 4
GIDDINGS (pop. 2,821)			
Postal receipts* $	2,604	— 52	— 3
Bank debits (thousands) $	2,651	+ 4	+ 11
End-of-month deposits (thousands)‡ $	3,727	+ 2	+ 23
Annual rate of deposit turnover	8.6	— 4	+ 10

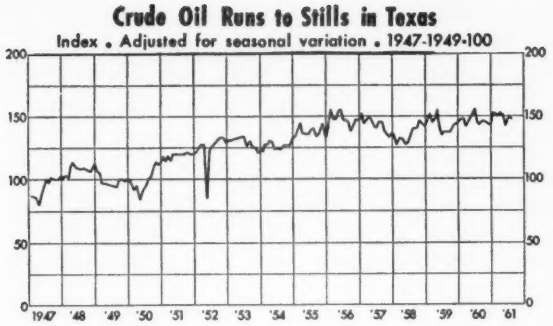

Crude Petroleum Production in Texas
Index . Adjusted for seasonal variation . 1947-1949-100
200
150
100
50
0
'47 '48 '49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 '60 '61

A New Unknown . . .

on the map, looked closer to the location than to any competing supermarket was actually farther away. This peculiarity was caused by a steep ridge crossed by two dirt tracks that showed up as streets on the local map. Virtually no one used these rutted roads—drivers preferring to go around the ridge rather than over it. Lastly, the store was located at the bottom of a steep hill on a curve. Persons taking a left turn into the parking lot could not see far enough ahead to give themselves reasonable protection in fast-moving traffic, and those turning right into the lot could not see the store until they were even with it. None of these considerations has ever become a formal part of location theory because it was always assumed by people in the business that any sensible location analyst would simply take such unusual factors into account. Unfortunately the mere formalization of location studies seemed to make it possible for self-styled experts to follow the book and use inexpensive labor to conduct the field work. In consequence, the most obvious characteristics of a site were sometimes ignored.

Formal analyses in business are often of tremendous help to those making decisions; in fact, some decisions cannot be safely made without them. But in very few areas can decisions rest on formal analysis alone. There is considerable evidence that informal analysis in the hands of a throughly experienced and capable person is sometimes quite good. The managers of a supermarket chain in the Southeast have done remarkably well in selecting locations, although their method until recently was just to ride around looking at potential locations and talking informally with merchants and customers in areas they thought appropriate.

By and large, the location analysts have not been wrong in their approval of a new location. The sites they have selected have generally shown that location theory was completely sound. The resounding failure of formal location analysis was that it turned down sites that later proved excellent. Not many months ago, a marketing consultant and a bank president were talking about the problems involved in retail store location. The marketing consultant mentioned some of the questionable areas in determining satisfactory locations and ended by pointing out that he never would have recommended a site on which a branch furniture store was doing a good business. The bank president smiled and said that as a director of the furniture retailing company he had fought long and hard against opening that particular branch.


Crude Oil Runs to Stills in Texas
Index • Adjusted for seasonal variation • 1947-1949-100
200
150
100
50
0
'47 '48 '49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 '60 '61

A New Unknown . . .

The current point of view is that there is no such thing as a bad location, there are only unsatisfactory stores. Of course, this is a serious overstatement; no retailing operation could become a major success by taking it literally. To understand just what it means, one must look at the retail revolution.

The Retail Revolution

The retail revolution cannot be completely described because it is still in progress. But some of its major features are clear. Some are so clear that they confuse the observer and result in rather fantastic analyses of what is going on. The retail revolution is not a trend toward self-selection, scrambled merchandising or vertical integration, although it has been called each of these. If it can be described briefly at all, it is a movement toward diversity.

By contrast, the period between world wars was one of growing conformity. The great American drug store was brought to maturity, the supermarket slowly evolved, and stores of all sorts imitated the obviously successful chain operation. Trade magazines and trade associations helped stores of all sorts to become more and more like some successful prototype. This growth toward uniformity was one of the underlying reasons for the rapid development of location theory, since identical stores obviously require highly similar locations. Of course, location analysts were aware of this; but, since all drugstores or hardware stores were supposed to be alike except in size, no one paid much attention to the matter.

It is quite a tribute to American ingenuity that hardening of the retail arteries did not set in when location theory reached "perfection" and information on just how a store of a given type should operate was widely disseminated. Of course, it would be a mistake to say that experimentation suddenly began in 1946. Retail experimentation has been constant and widespread in this country. But the decade of the thirties was not one in which many people were either able or disposed to take large risks. And the formal location study could eliminate a great deal of risk.

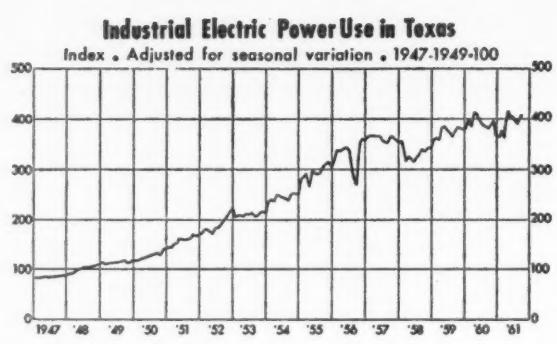
The revolution began in 1946. It moved in every direction. Expanding supermarket chains like Krogers discovered that their greatest profits came from large stores. Therefore, they increased the size of the stores they were building and soon began to sell off the smaller, less profitable stores. Obviously, this meant that their location requirements changed. At the same time the concentration

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
GLADEWATER (pop. 5,742)			
Postal receipts* ..... $	6,287	+ 1	+ 33
Building permits, less federal contracts $	20,400	— 47	+ 17
Bank debits (thousands) ..... $	3,375	+ 8	+ 4
End-of-month deposits (thousands) ‡ .... $	3,875	— 23	— 5
Annual rate of deposit turnover	9.1	+ 23	+ 1
Employment (area)	28,200	**	**
Manufacturing employment (area)	5,520	— 1	+ 5
Percent unemployed (area)	3.8	— 14	— 10
GOLDTHWAITE (pop. 1,383)			
Postal receipts* ..... $	1,674	— 25	+ 6
Bank debits (thousands) ..... $	3,146	+ 23	+ 13
End-of-month deposits (thousands) ‡ .... $	3,572	— 1	+ 19
Annual rate of deposit turnover	10.5	+ 22	+ 7
GRAHAM (pop. 8,505)			
Postal Receipts* ..... $	7,761	— 9	+ 15
Building permits, less federal contracts $	81,300	+ 10	+118
Bank debits (thousands) ..... $	8,891	— 4	— 2
End-of-month deposits (thousands) ‡ .... $	10,246	+ 1	+ 12
Annual rate of deposit turnover	10.5	— 3	**
GRANBURY (pop. 2,227)			
Postal receipts* ..... $	3,770	+ 4	+ 13
Bank debits (thousands) ..... $	1,286	— 9	.....
End-of-month deposits (thousands) ‡ .... $	1,785	— 4	.....
Annual rate of deposit turnover	18.5	— 9	.....
GRAND PRAIRIE (pop. 30,386)			
Postal receipts* ..... $	21,665	— 2	+ 3
Building permits, less federal contracts $	1,008,800	+ 84	+153
Bank debits (thousands) ..... $	17,167	+ 15	+ 16
End-of-month deposits (thousands) ‡ .... $	9,831	— 1	+ 21
Annual rate of deposit turnover	20.9	+ 11	+ 2
Employment (area)	446,800	**	+ 3
Manufacturing employment (area)	95,500	— 3	+ 2
Percent unemployed (area)	5.0	— 4	+ 14
GRAPEVINE (pop. 2,821)			
Postal receipts* ..... $	2,946	— 22	+ 18
Building permits, less federal contracts $	27,050	— 40	+145
Bank debits (thousands) ..... $	2,499	+ 4	+ 3
End-of-month deposits (thousands) ‡ .... $	2,720	— 3	+ 36
Annual rate of deposit turnover	10.9	+ 4	— 3
GREENVILLE (pop. 19,087)			
Retail sales	+ 3†	+ 13	— 5
Apparel stores	+ 14†	— 19	— 12
Automotive stores	+ 1†	+ 21	— 3
Drug stores	+ 1†	+ 2	— 4
Postal receipts* ..... $	20,594	+ 10	+ 1
Building permits, less federal contracts $	124,260	+ 35	+ 5
Bank debits (thousands) ..... $	14,672	— 3	+ 4
End-of-month deposits (thousands) ‡ .... $	15,587	— 1	+ 3
Annual rate of deposit turnover	11.3	— 3	— 4
HALE CENTER (pop. 2,196)			
Postal receipts* ..... $	1,727	— 9	— 2
Building permits, less federal contracts $	56,500	+ 11	+ 2
Bank debits (thousands) ..... $	2,453	— 14	+ 3
End-of-month deposits (thousands) ‡ .... $	3,564	— 3	+ 4
Annual rate of deposit turnover	8.1	— 11	+ 1
HARLINGEN (pop. 41,207)			
Retail sales			
Automotive stores	+ 1†	+ 7	— 7
Postal receipts* ..... $	35,255	— 5	+ 10
Building permits, less federal contracts $	291,800	+ 70	— 69
Bank debits (thousands) ..... $	76,742	+ 40	— 1
End-of-month deposits (thousands) ‡ .... $	31,578	+ 2	+ 1
Annual rate of deposit turnover	29.5	+ 29	— 7

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
HEMPSTEAD (pop. 1,505)			
Postal receipts*	$ 4,046	+ 10	+ 20
Bank debits (thousands)	$ 1,208	+ 5	+ 11
End-of-month deposits (thousands) ‡	$ 1,813	**	— 5
Annual rate of deposit turnover	8.0	+ 4	+ 16
HENDERSON (pop. 9,666)			
Retail sales			
Apparel stores	+ 14†	+ 59	+ 23
Postal receipts*	$ 9,631	— 28	+ 2
Building permits, less federal contracts	$ 103,255	+ 38	— 46
Bank debits (thousands)	$ 6,802	— 7	+ 7
End-of-month deposits (thousands) ‡	$ 15,298	+ 2	— 2
Annual rate of deposit turnover	5.4	— 8	+ 10
HEREFORD (pop. 7,652)			
Postal receipts*	$ 9,140	— 5	+ 4
Building permits, less federal contracts	$ 138,150	+ 34	+ 45
Bank debits (thousands)	$ 14,816	— 25	+ 19
End-of-month deposits (thousands) ‡	$ 12,112	— 7	+ 4
Annual rate of deposit turnover	14.2	— 23	+ 6
HOUSTON (pop. 938,219)			
Retail sales	+ 3†	+ 7	+ 5
Apparel stores	+ 26†	+ 34	+ 2
Automotive stores	**†	— 2	+ 3
Food stores	**†	+ 4	+ 4
Furniture and household appliance stores	**†	+ 4	+ 39
Gasoline and service stations	— 1†	+ 1	— 4
General merchandise stores	+ 6†	+ 14	**
Liquor stores	+ 2†	— 1	+ 21
Lumber, building material, and hardware stores	+ 9†	+ 17	+ 28
Postal receipts*	$ 1,546,000	**	+ 1
Building permits, less federal contracts	$23,295,067	— 9	— 12
Bank debits (thousands)	$ 2,908,727	+ 11	+ 11
End-of-month deposits (thousands) ‡	$ 1,313,265	— 1	+ 6
Annual rate of deposit turnover	26.4	+ 10	+ 6
Employment (area)	517,300	+ 1	+ 3
Manufacturing employment (area)	93,800	— 1	— 2
Percent unemployed (area)	4.7	— 10	+ 9
HUMBLE (pop. 1,711)			
Bank debits (thousands)	$ 2,073	+ 2	— 3
End-of-month deposits (thousands) ‡	$ 2,446	+ 1	— 14
Annual rate of deposit turnover	10.2	+ 1	— 15
IOWA PARK (pop. 3,295)			
Building permits, less federal contracts	$ 211,300	+188	— 37
Bank debits (thousands)	$ 2,857	— 8	+ 12
End-of-month deposits (thousands) ‡	$ 3,633	— 1	+ 10
Annual rate of deposit turnover	9.4	— 7	+ 3
JACKSONVILLE (pop. 9,590)			
Postal receipts*	$ 21,010	+ 30	+ 47
Building permits, less federal contracts	$ 97,900	+142	— 63
Bank debits (thousands)	$ 10,389	**	+ 1
End-of-month deposits (thousands) ‡	$ 9,409	+ 5	+ 14
Annual rate of deposit turnover	13.6	— 3	— 10
JASPER (pop. 4,889)			
Retail sales	+ 3†	+ 3	+ 3
Automotive stores	+ 1†	— 6	— 2
Postal receipts*	$ 7,098	— 11	— 14
Building permits, less federal contracts	$ 61,050	+468	.....
Bank debits (thousands)	$ 8,130	+ 3	+ 12
End-of-month deposits (thousands) ‡	$ 8,504	— 1	— 1
Annual rate of deposit turnover	11.4	+ 5	+ 12



A New Unknown . . .

on larger stores by the major food chains left retail vacuums that were quickly discovered. The small food store, open until midnight and all-day Sunday began to appear. It carried a limited line of food and other convenience items and was remarkably successful. The trend had already taken two directions: toward the giant supermarket filled with drug, clothing, and hardware items and a vastly expanded selection of food products and toward the tiny food store where a person could pick up a few items at almost any time without standing in a long check-out line. And the small store was capitalizing on generally poor locations, many of which would not support a service station. The development of drug stores was similar: large, scrambled-merchandise drug stores on one hand and highly specialized apothecary shops on the other. The latter, of course, operated where there was a low traffic area filled with doctors' offices. And location theory had almost nothing to say about the matter because it simply hadn't been considered.

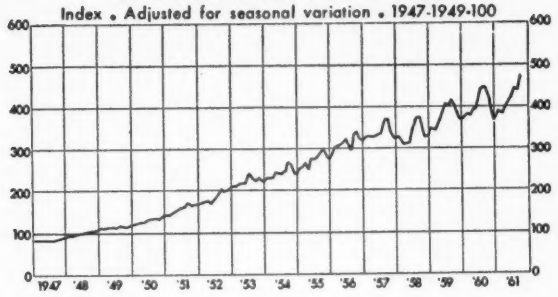
RETAIL SALES TRENDS BY KIND OF BUSINESS

Source: Bureau of Business Research in cooperation with the Bureau of the Census, U. S. Department of Commerce

Kind of business	Number of reporting establishments	Percent change: Normal seasonal* Aug from July	Actual: Aug 1961 from July 1961	Actual: Aug 1961 from Aug 1960	Actual: Jan-Aug 1961 from Jan-Aug 1960
DURABLE GOODS					
Automotive stores†	294	+ 1	+ 4	+ 1	— 8
Furniture and household appliance stores†	158	+ 1	+ 23	+ 19	— 6
Lumber, building material, and hardware stores	233	+ 1	+ 15	+ 16	+ 2
NONDURABLE GOODS					
Apparel stores	197	+ 14	+ 24	+ 7	— 3
Drug stores	192	+ 1	+ 4	+ 4	— 2
Eating and drinking places	69	+ 4	+ 5	— 2	— 3
Food stores	467	+ 1	+ 3	+ 2	— 1
Gasoline and service stations	547	— 2	+ 3	— 3	— 1
General merchandise stores†	204	+ 9	+ 23	+ 5	— 2
Other retail stores†	220	+ 5	+ 18	+ 9	— 1

* Average seasonal change from preceding month to current month.
† Includes kinds of business other than classification listed.

Total Electric Power Use in Texas



A New Unknown . . .

The worst was yet to come. Women's ready-to-wear shops appeared far from others of their kind, when location theory said that women like to shop around and visit two or three stores before selecting a dress and that lone locations were extremely dangerous. Furniture stores moved out of town. Drive-in cleaners popped up completely separated from supporting stores that were supposedly needed to provide foot traffic. And large discount houses that were, in effect, department stores took up location that were the very opposite of what location theory said such merchandise required.

It would be a mistake to say that location analysts were caught flat-footed. Many of them contributed to the retail revolution. Others, who imagined that the formal rules were good for all time, were severely shaken. Much of the move toward diversity was made by retail merchants who experimented with dozens of kinds of operations and hundreds of kinds of locations. And, as always, the great majority failed, sometimes because the location was not right for their operation, sometimes because their operation was not right for any location.

In the process, a simple truth has been made more evident. Store location is only a small factor in the success of a retail store. Intelligent and aggressive management can compensate for many inadequacies of location. The women's ready-to-wear shop that locates in a small shopping center far from other similar stores must learn to merchandise in such a way that it makes up for the inherent disadvantages of its location. Perhaps its answer might lie in specializing in casual and sports clothing for which women might not wish to shop exhaustively. In any case, if it finds a satisfactory line of merchandise, it has discovered that almost every location has some advantages and that *these* must be capitalized. For example the relatively low land and building costs of the typical discount house help make it possible to advertise heavily and still undersell the downtown department store. Similarly, one of the first things a department store learns on opening a suburban branch is that it must not operate the branch in the same way it operates its downtown store.

Dr. Willys R. Knight made a study of florist shops to determine why some were so successful while others were close to failure. There was no evidence that location bore any relationship to success because so many florists with excellent locations were in the hands of lackadaisical managers while so many in poor locations were run by young, aggressive owners.

Local Business Conditions

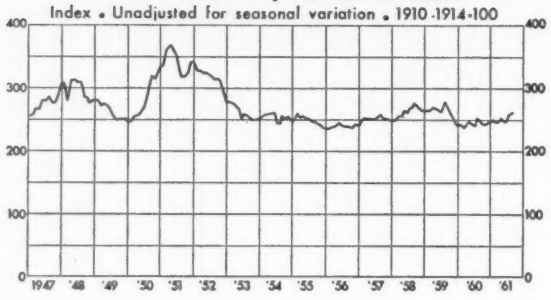
City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
JUSTIN (pop. 622)			
Postal receipts* ..... $	453	— 35	— 11
Building permits, less federal contracts $	7,000	.....	.....
Bank debits (thousands) ..... $	1,293	+ 1	— 3
End-of-month deposits (thousands) ‡ ... $	728	.....	— 3
KATY (pop. 1,569)			
Building permits, less federal contracts $	9,000	+ 80	— 69
Bank debits (thousands) ..... $	1,416	+ 3	**
End-of-month deposits (thousands) ‡ ... $	1,396	— 16	— 9
Annual rate of deposit turnover	11.1	+ 12	+ 4
KILGORE (pop. 10,092)			
Postal receipts* ..... $	13,060	+ 6	+ 3
Building permits, less federal contracts $	166,200	+ 50	— 56
Bank debits (thousands) ..... $	12,134	**	+ 1
End-of-month deposits (thousands) ‡ ... $	13,634	+ 1	— 5
Annual rate of deposit turnover	10.8	— 1	+ 7
Employment (area)	28,200	**	**
Manufacturing employment (area) ...	5,520	— 1	+ 5
Percent unemployed (area)	3.8	— 14	— 10
KILLEEN (pop. 23,377)			
Postal receipts* ..... $	23,832	— 6	+ 4
Building permits, less federal contracts $	238,671	— 76	— 2
Bank debits (thousands) ..... $	11,319	+ 9	+ 14
End-of-month deposits (thousands) ‡ ... $	8,150	**	+ 11
Annual rate of deposit turnover	16.7	+ 8	+ 1
KINGSVILLE (pop. 25,297)			
Postal receipts* ..... $	11,668	— 19	— 5
Building permits, less federal contracts $	61,269	— 53	— 37
Bank debits (thousands) ..... $	11,626	+ 15	+ 14
End-of-month deposits (thousands) ‡ ... $	12,342	+ 1	+ 11
Annual rate of deposit turnover	11.4	+ 13	+ 4
LA FERIA (pop. 3,047)			
Postal receipts* ..... $	1,684	— 26	— 10
Building permits, less federal contracts $	4,900	+367	+444
Bank debits (thousands) ..... $	3,035	+ 69	**
End-of-month deposits (thousands) ‡ ... $	1776	+ 18	**
Annual rate of deposit turnover	22.2	+ 42	— 7
LA MARQUE (pop. 13,969)			
Postal receipts* ..... $	7,904	— 18	+ 5
Building permits, less federal contracts $	113,525	+146	— 11
Bank debits (thousands) ..... $	7,092	— 16	+ 35
End-of-month deposits (thousands) ‡ ... $	5,599	— 8	+ 6
Annual rate of deposit turnover	14.6	— 12	+ 26
Employment (area)	52,600	— 1	+ 4
Manufacturing employment (area) ... $	10,660	— 1	— 1
Percent unemployed (area)	9.1	+ 6	+ 32
LAMESA (pop. 12,438)			
Retail sales	+ 3†	+ 8	— 9
Automotive stores	+ 1†	— 1	— 21
Drug stores	+ 1†	+ 10	— 1
Lumber, building material, and hardware stores	+ 1†	+ 61	+ 27
Postal receipts* ..... $	12,100	+ 13	+ 13
Building permits, less federal contracts $	602,500	+166	+306
Bank debits (thousands) ..... $	12,544	+ 2	+ 5
End-of-month deposits (thousands) ‡ ... $	13,012	— 1	+ 7
Annual rate of deposit turnover	11.5	+ 5	**
LAMPASAS (pop. 5,061)			
Postal receipts* ..... $	5,589	+ 23	+ 27
Building permits, less federal contracts $	17,000	— 43	— 52
Bank debits (thousands) ..... $	7,098	+ 2	+ 15
End-of-month deposits (thousands) ‡ ... $	6,826	+ 2	+ 6
Annual rate of deposit turnover	12.6	+ 2	+ 11

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
LAREDO (pop. 60,678)			
Postal receipts* ..... $	30,285	— 14	+ 4
Building permits, less federal contracts $	261,574	+101	— 55
Bank debits (thousands) ..... $	26,406	**	+ 1
End-of-month deposits (thousands) ‡ ... $	21,766	**	+ 1
Annual rate of deposit turnover	14.5	— 1	— 1
LEVELLAND (pop. 10,153)			
Postal receipts* ..... $	7,443	— 8	+ 14
Building permits, less federal contracts $	248,925	+284	+138
Bank debits (thousands) ..... $	9,851	+ 3	.....
End-of-month deposits (thousands) ‡ ... $	8,527	— 9	.....
Annual rate of deposit turnover	13.2	+ 12	.....
LLANO (pop. 2,656)			
Postal receipts* ..... $	2,251	— 17	+ 13
Bank debits (thousands) ..... $	4,330	+ 17	+ 13
End-of-month deposits (thousands) ‡ ... $	4,209	+ 4	— 1
Annual rate of deposit turnover	12.6	+ 13	+ 18
LOCKHART (pop. 6,084)			
Retail sales			
Apparel stores	+ 14†	+ 20	+ 10
Postal receipts* ..... $	3,421	— 14	+ 12
Building permits, less federal contracts $	20,430	+ 51	— 35
Bank debits (thousands) ..... $	4,821	+ 12	+ 5
End-of-month deposits (thousands) ‡ ... $	5,182	— 2	+ 8
Annual rate of deposit turnover	11.3	+ 11	— 2
LONGVIEW (pop. 40,050)			
Retail sales			
General merchandise stores	+ 9†	+ 14	+ 7
Lumber, building material, and hardware stores	+ 1†	**	— 9
Postal receipts* ..... $	42,771	— 14	— 1
Building permits, less federal contracts $	1,993,300	+196	+300
Bank debits (thousands) ..... $	44,846	+ 4	+ 4
End-of-month deposits (thousands) ‡ ... $	37,000	+ 4	+ 9
Annual rate of deposit turnover	14.8	+ 2	— 3
Employment (area)	28,200	**	**
Manufacturing employment (area)	5,520	— 1	+ 5
Percent unemployed (area)	3.8	— 14	— 10
LOS FRESNOS (pop. 1,289)			
Postal receipts* ..... $	799	— 11	— 11
Building permits, less federal contracts $	10,100	— 47	+527
Bank debits (thousands) ..... $	3,296	+ 42	— 11
End-of-month deposits (thousands) ‡ ... $	1,942	+ 22	+ 14
Annual rate of deposit turnover	22.3	+ 12	— 25
LOWER RIO GRANDE VALLEY (pop. 352,086) (Cameron, Willacy, and Hidalgo Counties)			
Retail sales	+ 3†	+ 9	— 5
Apparel stores	+ 14†	— 6	+ 3
Automotive stores	+ 1†	+ 8	— 13
Drug stores	+ 1†	+ 7	+ 4
Food stores	+ 1†	— 9	**
Furniture and household appliance stores	+ 1†	+ 12	— 9
General merchandise stores	+ 9†	+ 36	— 5
Lumber, building material, and hardware stores	+ 1†	+ 12	+ 30
Nurseries	.....	+ 50	**
Postal receipts* ..... $	.....	— 13	— 1
Building permits, less federal contracts $	.....	+ 86	+ 12
Bank debits (thousands) ..... $	.....	+ 28	— 3
End-of-month deposits (thousands) ‡ ... $	.....	+ 14	+ 13
Annual rate of deposit turnover	21.0	+ 12	— 15

Prices Received by Farmers in Texas

Index • Unadjusted for seasonal variation • 1910-1914=100



A New Unknown . . .

Retail location is one of the new unknowns in marketing, not because it is so difficult to tell where a new supermarket will be successful when one is told its size and method of operation, but because there are ways in which almost any reasonable location can be made to pay off, even ways in which singularly unreasonable locations can be made highly successful.

None of this means that location studies are out-of-date or inappropriate. Rather it means that a location study alone often gives too little information for the decision to open a retail store. In many cases what is needed is further analysis to suggest how a store on a particular site would have to operate in order to be profitable. And this further analysis can seldom be as specific as the traditional location study, nor can it be made by as narrow a specialist.

RAIL SHIPMENTS OF LIVESTOCK*

Source: Bureau of Business Research in cooperation with the Agricultural Marketing Service, U.S. Department of Agriculture

Classification	Aug 1961	July 1961	Aug 1960	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
	(in carloads)				
TOTAL	2,518	1,081	2,376	+133	+ 6
Cattle	1,623	635	1,644	+156	— 1
Calves	392	205	334	+ 91	+ 17
Sheep	503	241	398	+109	+ 26
Interstate	2,362	969	2,243	+144	+ 5
Cattle	1,548	590	1,538	+162	+ 1
Calves	315	139	311	+127	+ 1
Sheep	499	240	394	+108	+ 27
Intrastate	156	112	133	+ 39	+ 17
Cattle	75	45	106	+ 67	— 29
Calves	77	66	23	+ 17	+235
Sheep	4	1	4	+200	**

* Rail-car basis: cattle, 30 head per car; calves, 60; hogs, 80; and sheep, 250.

** Change is less than one-half of one percent.

EQUIPMENT REPLACEMENT IN THE OIL INDUSTRY

By RONNIE D. BOYD*

In any business enterprise, the decision concerning proper investment of the firm's available capital is a genuine and trying problem. Such decisions not only determine the very nature of the activity in which the firm will engage, but affect the firm's level of efficiency and its competitive advantage. Thus the need for effective means of evaluating proposed replacement and modernization becomes very clear.

The capital expenditure evaluation problem is especially difficult in the oil industry. Dollar expenditures are frequently enormous. There are hundreds of equipment classifications, each with its own particular operating and income characteristics. Finally, uniformity of expenditure policy is virtually impossible because of the wide variation in risk among alternative proposals. One refining company's controller said recently, "Deciding when to replace equipment in the petroleum industry is one of the most difficult problems management faces."

An integrated petroleum company is, in fact, several diverse, yet related industries. Any such company is a producer, manufacturer, a product merchandiser, and an operator of major transportation and distribution facilities. Each phase of the company has its own characteristics so that a uniform replacement and modernization policy must be modified by the specific requirements of the particular phase of the business.

Discussing this inherent lack of policy uniformity, the financial manager and controller of Tidewater Oil Co. states, "In the merchandising phase, novelty and customer appeal play important roles. In refining and petrochemicals, obsolescence is a significant factor. However, in all phases, the replacement program is geared to maximize our return on investment. The other factors merely contribute to the estimate of our potential earnings, whether it is a new promotional means of attracting customers or replacing operative, but inefficient equipment with new, more productive facilities."

Even within one phase of the integrated company, a diversity of policies may exist. The vice-president in charge of manufacturing for Humble's Esso Division, states that refineries have different replacement policies for different groups of equipment. For instance their policies vary as follows:

Tanks, pressure vessels, exchangers, pipe, etc. are judged on a technical basis using elaborate wall thickness data and inspection.

Pumps, compressors, turbines, and motors on becoming obsolete or too costly to operate, are evaluated for replacement on rate of return calculations.

Motorized equipment should be replaced when the future annual cost of ownership and maintenance exceeds the average annual cost of a new piece of equipment.

Ship equipment is evaluated principally on an obsolescence or increased productivity basis.

The general approach in the petroleum industry of separating small projects from the more important ones is concisely reported by the treasurer of Cities Service Oil Company: "The routine replacement of minor or low cost

*Mr. Boyd is Manufacturing Engineer in the Apparatus Division, Texas Instruments, Inc., Dallas, Texas.

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
LUBBOCK (pop. 128,691)			
Retail sales			
Automotive stores	+ 1†	**	— 24
Postal receipts* $	152,801	— 4	+ 7
Building permits, less federal contracts $	3,622,181	+ 38	+ 6
Bank debits (thousands) $	173,539	+ 3	— 3
End-of-month deposits (thousands)‡ $	109,074	— 1	+ 3
Annual rate of deposit turnover	19.0	+ 3	— 7
Employment (area)	49,600	**	— 6
Manufacturing employment (area)	5,260	— 9	— 4
Percent unemployed (area)	5.3	+ 2	+ 33
LUFKIN (pop. 17,641)			
Retail sales			
Automotive stores	+ 1†	— 25	— 18
Postal receipts* $	20,439	— 8	— 6
Building permits, less federal contracts $	246,600	+ 13	+ 48
Bank debits (thousands) $	24,397	— 5	+ 7
End-of-month deposits (thousands)‡ $	25,060	+ 8	+ 5
Annual rate of deposit turnover	12.1	— 8	+ 4
McALLEN (pop. 32,728)			
Retail sales	+ 3†	+ 12	— 6
Automotive stores	+ 1†	— 1	— 17
Postal receipts* $	25,702	— 9	+ 9
Building permits, less federal contracts $	198,925	— 54	— 8
Bank debits (thousands) $	26,927	+ 3	+ 2
End-of-month deposits (thousands)‡ $	21,013	+ 3	+ 10
Annual rate of deposit turnover	15.6	+ 2	— 7
McCAMEY (pop. 3,375)			
Postal receipts* $	2,715	— 19	— 9
Bank debits (thousands) $	1,998	+ 11	+ 8
End-of-month deposits (thousands)‡ $	1,830	— 11	— 2
Annual rate of deposit turnover	12.3	+ 23	+ 6
McGREGOR (pop. 4,642)			
Building permits, less federal contracts $	9,800	— 51	+390
Bank debits (thousands) $	2,693	**	— 8
End-of-month deposits (thousands)‡ $	4,829	+ 8	+ 1
Annual rate of deposit turnover	6.9	**	— 5
McKINNEY (pop. 13,763)			
Postal receipts* $	9,239	— 4	— 3
Building permits, less federal contracts $	465,550	+343	+407
Bank debits (thousands) $	9,521	+ 3	+ 2
End-of-month deposits (thousands)‡ $	8,873	**	— 3
Annual rate of deposit turnover	12.9	+ 4	+ 3
MARSHALL (pop. 23,846)			
Retail sales	+ 3†	+ 11	+ 6
Apparel stores	+ 14†	+ 23	+ 20
General merchandise stores	+ 9†	+ 9	+ 4
Postal receipts* $	22,688	— 1	— 3
Building permits, less federal contracts $	202,485	— 35	— 72
Bank debits (thousands) $	15,788	— 8	— 12
End-of-month deposits (thousands)‡ $	19,357	— 9	+ 3
Annual rate of deposit turnover	9.3	— 8	— 14
MERCEDES (pop. 10,943)			
Postal receipts* $	4,623	— 8	— 8
Building permits, less federal contracts $	245,800	+3419	+1607
Bank debits (thousands) $	8,907	+ 44	+ 8
End-of-month deposits (thousands)‡ $	5,136	+ 19	+ 20
Annual rate of deposit turnover	22.6	+ 23	— 12
MESQUITE (pop. 27,526)			
Postal receipts* $	10,595	— 15	+ 14
Building permits, less federal contracts $	2,715,493	+184	+127
Bank debits (thousands) $	5,753	— 2	+ 6
End-of-month deposits (thousands)‡ $	4,028	— 7	— 20
Annual rate of deposit turnover	16.5	+ 5	+ 40
Employment (area)	446,800	**	+ 3
Manufacturing employment (area)	75,500	— 3	+ 2
Percent unemployed (area)	5.0	— 4	+ 14

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
MEXIA (pop. 6,121)			
Postal receipts* ..... $	4,459	— 23	— 4
Building permits, less federal contracts $	19,500	— 60	+ 3
Bank debits (thousands) ..... $	3,585	+ 2	+ 8
End-of-month deposits (thousands)‡ .. $	4,620	**	— 2
Annual rate of deposit turnover	9.3	+ 1	+ 12
MIDLAND (pop. 62,625)			
Retail sales			
Drug stores	+ 1†	+ 9	+ 26
Postal receipts* ..... $	90,171	+ 24	+ 14
Building permits, less federal contracts $	1,429,984	+ 63	— 5
Bank debits (thousands) ..... $	113,180	**	+ 7
End-of-month deposits (thousands)‡ .. $	96,076	+ 3	— 3
Annual rate of deposit turnover	14.3	+ 7	+ 12
Employment (area)	54,400	+ 1	+ 1
Manufacturing employment (area)	2,340	**	+ 2
Percent unemployed (area)	3.6	— 3	— 22
MIDLOTHIAN (pop. 1,521)			
Building permits, less federal contracts $	11,750	— 44	— 89
Bank debits (thousands) ..... $	1,189	+ 10	+ 5
End-of-month deposits (thousands)‡ .. $	1,450	**	**
Annual rate of deposit turnover	9.8	+ 11	+ 4
MISSION (pop. 14,081)			
Postal receipts* ..... $	5,781	— 38	— 26
Building permits, less federal contracts $	53,572	+ 84	— 49
Bank debits (thousands) ..... $	12,775	+ 1	— 6
End-of-month deposits (thousands)‡ .. $	9,188	— 2	— 6
Annual rate of deposit turnover	16.5	+ 1	+ 2
MONAHANS (pop. 8,567)			
Postal receipts* ..... $	7,126	— 22	**
Building permits, less federal contracts $	30,700	— 78	— 66
Bank debits (thousands) ..... $	9,139	+ 19	— 2
End-of-month deposits (thousands)‡ .. $	7,539	+ 2	+ 5
Annual rate of deposit turnover	14.7	+ 18	— 5
MUENSTER (pop. 1,190)			
Retail sales			
Automotive stores	+ 1†	— 28	— 21
Postal receipts* ..... $	1,114	— 14	— 26
Building permits, less federal contracts $	225,000	+7400	+971
Bank debits (thousands) ..... $	2,039	+ 7	+ 14
End-of-month deposits (thousands)‡ .. $	1,903	+ 3	+ 5
Annual rate of deposit turnover	13.0	+ 2	+ 17
NACOGDOCHES (pop. 12,674)			
Retail sales			
Apparel stores	+ 14†	— 6	+ 15
Postal receipts* ..... $	14,736	+ 11	+ 14
Building permits, less federal contracts $	89,398	— 41	+ 15
Bank debits (thousands) ..... $	15,530	+ 3	— 1
End-of-month deposits (thousands)‡ .. $	16,024	+ 4	+ 18
Annual rate of deposit turnover	11.8	— 1	— 14
NEDERLAND (pop. 12,036)			
Building permits, less federal contracts $	122,352	— 32	— 46
Bank debits (thousands) ..... $	4,331	+ 12	.....
End-of-month deposits (thousands)‡ .. $	5,279	+ 2	.....
Annual rate of deposit turnover	9.9	+ 14	.....
NEW BRAUNFELS (pop. 15,631)			
Postal receipts* ..... $	15,968	— 12	— 12
Building permits, less federal contracts $	66,225	— 51	— 70
Bank debits (thousands) ..... $	12,049	+ 4	+ 5
End-of-month deposits (thousands)‡ .. $	11,245	+ 2	+ 6
Annual rate of deposit turnover	13.0	+ 6	+ 6

Equipment Replacement . . .

equipment can be disposed of by stating that it is replaced on a time or use basis, when obviously required to prevent the shut-down of operations or to reduce expense. The type of equipment classified as minor or low cost would vary with the size of the company you are considering. In our company an example is motor vehicles which are generally on a mileage basis. The replacement mileage in turn is based upon studies of operating maintenance expense versus replacement cost."

In considering the replacement of more costly equipment, such factors as write-off period, operating cost estimates, financing means, depreciation method, rate of return, payout, and others, are considered in varying degrees. Generally each major prospect is considered individually, including alternatives. Regardless of how the problem is presented, the data must of necessity be based upon estimates which involve to some extent the exercise of judgment. In the final analysis, management's decision will depend upon judgment in weighing the various factors.

Industry Practices

Based on a survey of 35 selected petroleum industry companies, it is possible to draw six conclusions about industry practices in the area of equipment replacement economics.

1. To figure profitability for justifying replacements on a financial basis, the companies use (a) cash payout, and (b) discounted cash flow rate of return. In addition, many firms use other evaluation methods along with these two.

2. Once a replacement opportunity is determined to be economically advantageous, the project must compete with other investment opportunities for capital usage.

3. Generally, a 15% rate of return is attractive for replacements where earnings appear sound but a higher rate is required if more risk is involved.

4. Although debt financing is used to increase the return on shareholder's equity, most funds for expenditures are obtained from equity sources.

5. Equipment is seldom leased and then only if lease payments are economically feasible from the viewpoint of the company.

6. Depreciation, other than that on unit-of-production equipment, is usually on a group basis using conservative rates. Well servicing and refinery equipment is usually written off rapidly (double declining balance depreciation).

Each of these six conclusions is important enough to warrant separate discussion in the sections which follow.

Methods of Economic Evaluation

Since proposals for equipment replacement rest primarily upon financial justification, project evaluation necessitates the use of certain analytical techniques. These methods are intended to narrow the decision-making margin of error. Each of the three described here is unique as a potential guide to the most efficient use of available funds.

Equipment Replacement . . .

a. *Cash Payout.* Perhaps the most common question directed to those proposing equipment replacement is "How long will be required for the original outlay to pay for itself?" The cash payout method provides an answer. Basically, it is a very simple concept, whereby the cash requirement of the project is divided by the anticipated annual earnings (savings). This then, is designed to provide information pertaining to cash budgeting, and the period which will lapse before the treasury is replenished.

Assume for example, that a company is considering the replacement of a machine at an expense of $10,000. The firm's engineers calculate the annual savings attributable to the new equipment at $2,000. If the output of the new machine is comparable to that of the old one, the payout period would obviously be five years.

This technique is immediately complicated, however, when additional factors are introduced such as depreciation and taxes, or if the capacity of the two machines is not equivalent.

b. *Rate of Return.* The former technique makes no attempt to reveal a project's profitability. Rate of return on investment pertains to the rate of interest that will make the current value of future savings identical to the cost of replacement and is referred to as discounted cash flow (DCF). Hence, it measures the present value of income created over the entire life of the investment. The implementation of this method necessitates the discounting of an annuity (the amount saved per year) for the period (the life of the equipment).

Again assume a proposal to buy a piece of equipment at $10,000 with a life of 14 years. An annuity table indicates that the annual $2,000 provides an 18% return. This is simply the interest rate that discounts a 14-year annuity of $2,000 to a present cost of $10,000. Note again that the example ignores both taxes and depreciation.

c. *MAPI Method.* The Machinery and Allied Products Institute method requires that a summary of the operating cost advantages of the new equipment be made. Then the additional cost of keeping the old equipment another year is computed. The added income tax resulting from higher income must be subtracted from the gains resulting from the first two factors. With this information in hand, the analyst refers to the MAPI charts for a first-year consumption cost and uses that figure to find the next year's rate of return. One of the advantages claimed for this formula is that it saves a good deal of time and allows periodic checks of all equipment to determine what currently needs replacing.

The survey demonstrated that almost all companies use cash payout and discounted cash flow rate of return calculations as indicators of profitability. An American Petroleum Institute report shows that all companies use more than one method of evaluation and that all use the cash payout method. Other commonly used profitability measures are: return on original and average investment, discounted present worth, and discounted present worth on gross investment. The API report indicates that the DCF

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
ODESSA (pop. 80,338)			
Retail sales			
Furniture and household appliance stores	+ 1†	+ 22	+ 34
Postal receipts* $	65,447	— 5	+ 1
Building permits, less federal contracts $	904,783	+ 42	— 1
Bank debits (thousands) $	70,794	+ 1	**
End-of-month deposits (thousands)‡ $	61,023	— 2	+ 4
Annual rate of deposit turnover	13.8	+ 5	— 5
Employment (area)	54,400	+ 1	+ 1
Manufacturing employment (area)	2,340	**	+ 2
Percent unemployed (area)	3.6	— 3	— 22
ORANGE (pop. 25,605)			
Retail sales			
Apparel stores	+ 14†	+ 16	+ 20
Postal receipts* $	21,193	— 4	**
Building permits, less federal contracts $	229,146	+ 50	— 36
Bank debits (thousands) $	26,060	+ 4	+ 5
End-of-month deposits (thousands)‡ $	20,972	+ 1	+ 4
Annual rate of deposit turnover	15.0	+ 4	**
Employment (area)	107,500	**	+ 1
Manufacturing employment (area)	34,030	— 2	— 1
Percent unemployed (area)	7.0	— 19	+ 8
PALESTINE (pop. 13,974)			
Postal receipts* $	10,927	— 10	+ 3
Building permits, less federal contracts $	171,719	— 31	+ 42
Bank debits (thousands) $	10,266	+ 3	+ 9
End-of-month deposits (thousands)‡ $	14,313	+ 1	+ 5
Annual rate of deposit turnover	8.7	+ 2	+ 6
PAMPA (pop. 24,664)			
Retail sales	+ 3†	+ 7	— 7
Automotive stores	+ 1†	— 1	— 19
Eating and drinking places	+ 4†	+ 3	— 7
Lumber, building material, and hardware stores	+ 1†	+ 5	— 1
Postal receipts* $	22,223	— 6	— 2
Building permits, less federal contracts $	93,145	.....	— 78
Bank debits (thousands) $	23,735	**	+ 4
End-of-month deposits (thousands)‡ $	21,391	— 4	— 10
Annual rate of deposit turnover	13.0	— 6	+ 14
PARIS (pop. 20,977)			
Retail sales	+ 3†	**	+ 6
Apparel stores	+ 14†	+ 17	+ 11
Automotive stores	+ 1†	— 7	+ 2
Lumber, building material, and hardware stores	+ 1†	**	+ 22
Postal receipts* $	19,114	+ 10	+ 11
Building permits, less federal contracts $	442,558	+154	+181
Bank debits (thousands) $	16,364	— 5	+ 14
End-of-month deposits (thousands)‡ $	12,815	— 2	+ 4
Annual rate of deposit turnover	15.2	— 4	+ 9
PASADENA (pop. 58,737)			
Postal receipts* $	30,173	— 4	— 2
Building permits, less federal contracts $	963,800	— 11	+ 1
Bank debits (thousands) $	39,326	+ 4	+ 11
End-of-month deposits (thousands)‡ $	21,226	+ 4	**
Annual rate of deposit turnover	22.7	+ 2	+ 15
Employment (area)	517,300	+ 1	+ 3
Manufacturing employment (area)	93,800	— 1	— 2
Percent unemployed (area)	4.7	— 10	+ 9
PHARR (pop. 14,106)			
Postal receipts* $	4,833	— 1	— 4
Building permits, less federal contracts $	29,093	+ 58	— 78
Bank debits (thousands) $	4,530	+ 14	— 4
End-of-month deposits (thousands)‡ $	4,724	+ 24	— 6
Annual rate of deposit turnover	12.7	+ 3	— 5

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Building permits, less federal contracts	$ 19,500	— 60	+ 3
Bank debits (thousands)	$ 3,585	+ 2	+ 8
End-of-month deposits (thousands)‡	$ 4,620	**	— 2
Annual rate of deposit turnover	9.3	+ 1	+ 12
MIDLAND (pop. 62,625)			
Retail sales			
Drug stores	+ 1†	+ 9	+ 26
Postal receipts*	$ 90,171	+ 24	+ 14
Building permits, less federal contracts	$ 1,429,984	+ 63	— 5
Bank debits (thousands)	$ 113,180	**	+ 7
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Building permits, less federal contracts	$ 11,750	— 44	— 89
Bank debits (thousands)	$ 1,189	+ 10	+ 5
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Postal receipts*	$ 14,736	+ 11	+ 14
Building permits, less federal contracts	$ 89,398	— 41	+ 15
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Postal receipts*	$ 15,968	— 12	— 12
Building permits, less federal contracts	$ 66,225	— 51	— 70
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Building permits, less federal contracts $	904,783	+ 42	— 1
Bank debits (thousands) $	70,794	+ 1	**
End-of-month deposits (thousands)‡ $	61,023	— 2	+ 4
Annual rate of deposit turnover	13.8	+ 5	— 5
Employment (area)	54,400	+ 1	+ 1
Manufacturing employment (area)	2,340	**	+ 2
Percent unemployed (area)	3.6	— 3	— 22
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Annual rate of deposit turnover	8.7	+ 2	+ 6
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Retail sales	+ 2†	+ 7	— 7
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Building permits, less federal contracts $	93,145	.....	— 78
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Percent unemployed (area)	4.7	— 10	+ 9
PHARR (pop. 14,106)			
Postal receipts* $	4,833	— 1	— 4
Building permits, less federal contracts $	29,093	+ 58	— 78
Bank debits (thousands) $	4,530	+ 14	— 4
End-of-month deposits (thousands)‡ $	4,724	+ 24	— 6
Annual rate of deposit turnover	12.7	+ 3	— 5

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
PILOT POINT (pop. 1,254)			
Building permits, less federal contracts	$ 7,000	.....	+ 56
Bank debits (thousands)	$ 785	+ 2	.....
End-of-month deposits (thousands) ‡	$ 1,353	+ 1	.....
Annual rate of deposit turnover	7.0	+ 17	.....
PLAINVIEW (pop. 18,735)			
Retail sales	+ 3†	+ 24	+ 9
Apparel stores	+ 14†	— 17	+ 6
Automotive stores	+ 1†	+ 38	+ 13
Postal receipts*	$ 18,985	— 5	+ 14
Building permits, less federal contracts	$ 592,400	+ 66	+127
Bank debits (thousands)	$ 30,246	— 18	+ 8
End-of-month deposits (thousands) ‡	$ 22,509	— 1	••
Annual rate of deposit turnover	16.0	— 16	+ 8
PLANO (pop. 3,695)			
Postal receipts*	$ 3,778	— 15	+ 33
Building permits, less federal contracts	$ 810,164	+ 34	+523
Bank debits (thousands)	$ 2,058	+ 1	+ 25
End-of-month deposits (thousands) ‡	$ 1,874	— 5	+ 4
Annual rate of deposit turnover	12.8	+ 2	+ 19
PORT ARTHUR (pop. 66,676)			
Retail sales	+ 3†	+ 9	+ 8
Automotive stores	+ 1†	+ 6	+ 4
Food stores	+ 1†	— 1	+ 3
Furniture and household appliance stores	+ 1†	+ 26	+ 30
Postal receipts*	$ 43,983	— 22	— 8
Building permits, less federal contracts	$ 360,012	— 46	+ 36
Bank debits (thousands)	$ 65,469	+ 3	+ 2
End-of-month deposits (thousands) ‡	$ 44,061	— 1	+ 4
Annual rate of deposit turnover	17.8	+ 3	— 4
Employment (area)	107,500	••	+ 1
Manufacturing employment (area)	34,030	— 2	— 1
Percent unemployed (area)	7.0	— 19	+ 8
PORT ISABEL (pop. 3,575)			
Postal receipts*	$ 1,905	— 29	+ 4
Building permits, less federal contracts	$ 3,000	+200	— 72
Bank debits (thousands)	$ 998	+ 29	+ 58
End-of-month deposits (thousands) ‡	$ 715	+ 8	+ 53
Annual rate of deposit turnover	17.4	+ 21	— 1
PORT NECHES (pop. 8,696)			
Postal receipts*	$ 6,151	— 7	+ 24
Building permits, less federal contracts	$ 79,456	— 24	+ 48
Bank debits (thousands)	$ 7,309	— 3	— 16
End-of-month deposits (thousands) ‡	$ 5,537	••	.....
Annual rate of deposit turnover	15.9	— 1	.....
RAYMONDVILLE (pop. 9,385)			
Postal receipts*	$ 7,700	+ 2	— 11
Building permits, less federal contracts	$ 21,020	— 16	— 39
Bank debits (thousands)	$ 17,012	+ 34	— 18
End-of-month deposits (thousands) ‡	$ 10,673	+ 16	+ 7
Annual rate of deposit turnover	20.6	+ 10	— 26
ROBSTOWN (pop. 10,266)			
Postal receipts*	$ 5,463	— 29	— 10
Building permits, less federal contracts	$ 27,800	— 77	— 38
Bank debits (thousands)	$ 19,546	+ 64	.....
End-of-month deposits (thousands) ‡	$ 11,795	+ 28	.....
Annual rate of deposit turnover	22.3	.....	.....
ROCKDALE (pop. 4,481)			
Postal receipts*	$ 3,473	— 23	••
Building permits, less federal contracts	$ 46,275	+ 48	+ 56
Bank debits (thousands)	$ 3,762	+ 7	— 8
End-of-month deposits (thousands) ‡	$ 5,434	— 1	— 1
Annual rate of deposit turnover	8.3	+ 8	— 7

Equipment Replacement . . .

rate of return, which has been used for over 20 years in the petroleum industry, is the final criterion for over half the oil companies questioned.

Continental Oil Company has been using financial rate of return (the discounted cash flow method) as the primary yardstick for evaluating new capital expenditures since 1955.

Sun Oil Company states that its rate of return minimums are not hard and fast, although they are naturally partial to early payback as a means of determining investment proposals. This is particularly true in their manufacturing and marketing departments. Discounted cash flow studies are prepared for manufacturing projects and production department proposals, and these have proved helpful to management in making final decisions.

A small production and refining company reported insistence upon payout of no more than three years in determining whether or not a refinery processing unit should be replaced.

Standard of California justifies replacements "in kind" by a cash payout analysis when repair costs make replacement attractive. However, when replacements are studied, the justification is expressed in terms of discounted cash flow rate of return in addition to cash payout. This study is not only conducted whenever a replacement in kind becomes absolutely necessary, but also when the company management, technical, or operating personnel become aware of an attractive replacement.

One integrated company's treasurer comments that, "Perhaps it is the general economic condition in which the oil industry finds itself that has caused many companies to attempt to become more scientific about the evaluation of capital expenditures." His firm uses the discounted cash flow rate of return. With respect to operating cost estimation, he says, "In my personal opinion it always makes sense, even though a facility is operating profitably, to invest additional capital in the project if it will show a reasonable payout and rate of return."

Well servicing companies in the oil industry have an inherently different problem from that of producing and integrated oil companies. The service company assets consist of expensive trucks and equipment which have short lives and high operating expense. These are depreciated rapidly and more standard means of replacement evaluation are often used. Payout and DFC rate of return are used, but most well servicing firms use the "next year cost of not replacing" concept and a few use the MAPI formula method for replacement decisions.

Some of the larger firms in the industry use very detailed systems for evaluating capital expenditures and require some five or six project profitability measures to be calculated on every major project. As an illustration, Union Oil Company's Houston Office prepares a form giving not one but all the following measures for evaluation:

Equipment Replacement . . .

Measure	*Definition*
Net Profit	Gross income minus operating cost, tax and investment
Profitability	Net profit divided by total investment
Discounted Net Profit	Cumulative present worth of annual cash flow minus investment
Discounted Profitability	Discounted net profit divided by total investment
Payout	Years for project to return the investment
Rate of Return	Discounted cash flow method

Replacements Compete with New Projects

It is quite evident that replacement projects get no preferential treatment but must compete with new projects for company funds. Tidewater Oil Company, for example, considers a replacement project's incremental return on investment compared to operation without the investment. The company equates this with other investment opportunities to determine the most effective utilization of capital resources. They also report that variations in timing are tested to determine whether the replacement should be effected immediately or postponed to a later date when its ecoomics are more favorable.

The assistant treasurer of Sunray Mid-Continent Oil Company notes that his firm uses the same evaluation method for all capital expenditures, replacement or not, and measures the rate of return for one phase of the business against alternative returns available in other segments.

In summarizing replacement policy, the Standard Oil of California controller states that this company applies all ordinary "prudent man" tests to replacements in the same manner as they would to new construction projects, including budgeting.

Project Profitability Minimums

Establishing a general minimum return on capital investments for a company is a rather hard and seemingly useless thing to do. Each project must be examined individually and an acceptable rate of return will depend on the relative risk in getting the anticipated income, total profit, project income to investment ratio, payout, money available, and the firm's need for additional production or products. Also influencing the rate of return is the degree to which other elements are considered—safety, prudent operation requirements (conservation, government regulations, and royalty owner protection), goodwill, and product delivery specification requirements. On the other hand, most firms have certain minimum rates of return for certain types of equipment, below which investments are considered not profitable enough, relative to other opportunities.

The minimums can be in the form of the number of years to payout, as stated by these rules-of-thumb reported by an independent producing company:

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
SAN ANGELO (pop. 58,815)			
Retail sales	+ 3†	+ 6	+ 4
Food stores	+ 1†	— 3	+ 2
Jewelry stores	.....	+ 12	— 2
Postal receipts*	69,283	+ 7	— 4
Building permits, less federal contracts	$ 2,198,634	+245	+125
Bank debits (thousands)	$ 55,241	+ 9	— 2
End-of-month deposits (thousands) ‡	$ 48,422	+ 2	+ 2
Annual rate of deposit turnover	13.8	+ 5	— 3
Employment (area)	19,700	**	— 5
Manufacturing employment (area)	2,870	— 7	— 12
Percent unemployed (area)	4.9	— 8	+ 2
SAN ANTONIO (pop. 587,718)			
Retail sales	+ 9†	+ 11	+ 1
Apparel stores	+ 13†	+ 36	+ 7
Automotive stores	+ 2†	**	— 2
Drug stores	**†	+ 4	+ 6
Eating and drinking places	+ 4†	+ 10	+ 3
Food stores	+ 3†	+ 2	— 9
Furniture and household appliance stores	— 2†	+ 17	+ 20
Gasoline and service stations	— 4†	+ 12	+ 1
General merchandise stores	+ 8†	+ 21	+ 4
Jewelry stores	.....	+ 54	+ 11
Lumber, building material, and hardware stores	— 4†	+ 7	— 2
Nurseries	.....	+ 26	+ 86
Postal receipts*	$ 687,295	+ 9	+ 3
Building permits, less federal contracts	$ 6,045,383	+122	— 21
Bank debits (thousands)	$ 678,010	+ 12	+ 6
End-of-month deposits (thousands) ‡	$ 387,244	— 6	+ 7
Annual rate of deposit turnover	20.4	+ 11	— 2
Employment (area)	205,000	**	+ 2
Manufacturing employment (area)	23,600	— 7	— 7
Percent unemployed (area)	5.5	— 5	+ 17
SAN JUAN (pop. 4,371)			
Postal receipts*	$ 1,696	— 18	+ 21
Building permits, less federal contracts	$ 18,550	— 53	— 62
SAN MARCOS (pop. 12,713)			
Postal receipts*	9,615	— 1	+ 19
Building permits, less federal contracts	$ 35,930	— 72	— 70
Bank debits (thousands)	$ 7,050	— 4	+ 2
End-of-month deposits (thousands) ‡	$ 7,999	— 4	+ 4
Annual rate of deposit turnover	10.3	— 4	— 4
SAN SABA (pop. 2,728)			
Postal receipts*	$ 2,251	— 10	+ 28
Bank debits (thousands)	$ 4,028	+ 6	+ 29
End-of-month deposits (thousands) ‡	$ 4,821	+ 3	+ 3
Annual rate of deposit turnover	10.1	+ 3	+ 26
SEAGOVILLE (pop. 3,745)			
Postal receipts*	$ 1,950	— 22	+ 4
Building permits, less federal contracts	$ 3,600	— 93	— 94
Bank debits (thousands)	$ 1,942	+ 3	**
End-of-month deposits (thousands) ‡	$ 1,204	— 3	+ 9
Annual rate of deposit turnover	19.0	+ 3	— 6
SEGUIN (pop. 14,299)			
Postal receipts*	$ 9,855	— 4	— 2
Building permits, less federal contracts	$ 89,020	— 17	+ 52
Bank debits (thousands)	$ 9,262	+ 4	+ 2
End-of-month deposits (thousands) ‡	$ 13,759	+ 3	— 2
Annual rate of deposit turnover	8.2	+ 4	+ 5
SILSBEE (pop. 6,277)			
Postal receipts*	$ 6,310	— 7	+ 6
Bank debits (thousands)	$ 3,785	+ 1	— 2
End-of-month deposits (thousands) ‡	$ 4,980	— 2	+ 5
Annual rate of deposit turnover	9.0	+ 3	— 6

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
SHERMAN (pop. 24,988)			
Retail sales	+ 3†	+ 17	+ 13
Apparel stores	+ 14†	+ 16	+ 14
Automotive stores	+ 1†	+ 13	+ 24
Furniture and household appliance stores	+ 1†	+ 30	+ 14
Postal receipts* $	26,991	— 8	— 2
Building permits, less federal contracts $	559,350	+171	+ 87
Bank debits (thousands) $	26,425	**	+ 9
End-of-month deposits (thousands) ‡ $	18,655	— 2	+ 10
Annual rate of deposit turnover	16.8	— 1	— 2
SINTON (pop. 6,008)			
Postal receipts* $	11,725	+106	— 1
Building permits, less federal contracts $	15,275	— 92	— 56
Bank debits (thousands) $	6,275	+ 51	+ 11
End-of-month deposits (thousands) ‡ $	5,452	+ 11	— 14
Annual rate of deposit turnover	14.6	+ 34	+ 27
SLATON (pop. 6,568)			
Postal receipts* $	3,196	— 17	— 8
Building permits, less federal contracts $	44,910	+468	— 28
Bank debits (thousands) $	2,755	— 9	+ 2
End-of-month deposits (thousands) ‡ $	3,269	— 5	— 1
Annual rate of deposit turnover	9.8	— 6	+ 2
Employment (area)	49,600	**	— 6
Manufacturing employment (area)	5,260	— 9	— 4
Percent unemployed (area)	5.2	+ 2	+ 33
SMITHVILLE (pop. 2,933)			
Postal receipts* $	1,470	— 24	— 11
Building permits, less federal contracts $	650	— 92	— 99
Bank debits (thousands) $	1,171	— 4	+ 1
End-of-month deposits (thousands) ‡ $	2,080	— 1	— 5
Annual rate of deposit turnover	6.7	— 3	+ 6
SNYDER (pop. 13,850)			
Postal receipts* $	12,986	+ 39	+ 19
Building permits, less federal contracts $	53,700	— 46	— 1
Bank debits (thousands) $	11,724	— 5	— 8
End-of-month deposits (thousands) ‡ $	15,870	+ 18	+ 19
Annual rate of deposit turnover	9.6	— 14	— 14
SOUTH HOUSTON (pop. 7,523)			
Building permits, less federal contracts $	88,115	— 96	+156
Bank debits (thousands) $	3,296	+ 6	— 9
End-of-month deposits (thousands) ‡ $	2,569	— 1	— 5
Annual rate of deposit turnover	15.3	+ 30	— 2
SULPHUR SPRINGS (pop. 9,160)			
Postal receipts* $	7,618	— 14	— 6
Building permits, less federal contracts $	79,705	— 5	+ 51
Bank debits (thousands) $	10,527	+ 10	+ 11
End-of-month deposits (thousands) ‡ $	12,809	+ 2	+ 7
Annual rate of deposit turnover	10.0	+ 8	+ 6
SWEETWATER (pop. 13,914)			
Retail sales			
Automotive stores	+ 1†	+ 30	+ 9
Postal receipts* $	13,818	+ 29	— 7
Building permits, less federal contracts $	40,300	+120	+150
Bank debits (thousands) $	9,872	+ 7	— 5
End-of-month deposits (thousands) ‡ $	9,411	— 4	— 2
Annual rate of deposit turnover	12.4	+ 10	— 2
TAYLOR (pop. 9,434)			
Retail sales			
Automotive stores	+ 1†	+ 16	— 11
Postal receipts* $	7,059	— 21	+ 19
Building permits, less federal contracts $	81,610	+ 68	+140
Bank debits (thousands) $	7,894	+ 23	— 9
End-of-month deposits (thousands) ‡ $	12,276	+ 6	+ 1
Annual rate of deposit turnover	8.0	+ 21	— 8

Equipment Replacement . . .

Type of Equipment	*Required Payout Time*	*Normal Life*
Prime Movers, slow speed	2	10
Prime Movers, high speed	1	5
Electrical Equipment	5	20
Gathering Lines	3–5	10–20
Pumping Units	3	20
Automation	2	5–10

As stated earlier, the use of payout as the only evaluation method is not recommended. Payout ignores the measure of total profitability over the entire life of the project and earnings for the other 17 years of useful life (in the case of pumping units, above) are not weighed or considered. Payout is much better as a preliminary screening tool to sort out projects that need reviewing by other methods and to evaluate the relative risk of a project.

Continental Oil Company has a better defined discounted cash flow rate of return minimum for financial justification of capital investments. The company estimates that at least 7% per annum after taxes should be regarded as the rate necessary to cover average, long-run cost of capital and to maintain per share earnings at ordinary (1955) levels. The recommended normally expected level of return for the general run of investments should be:

Marketing and Pipleline facilities	10% or better
Refining Facilities	14% or better
Development Wells and Petrochemical facilities	18% or better

One integrated firm's controller states that generally a 15% return on investment would be considered attractive for replacements where anticipated earnings appear sound, but higher returns are needed on projects involving greater risks. The three-year payout maximum on refinery units mentioned above is another company's general minimum. One well servicing company sets no minimum but says that anything in excess of 20% return after tax "is considered high enough to allow a margin of error and produce a good return."

One of the largest corporations stated that it has standards which list minimum desired rates of return and payouts. All projects are classified into three broad groups chiefly on the basis of risk and growth potential. Each group has a different standard. However, the company indicated that such standards might more appropriately be called guides. For example, the firm might be willing to install a plant which does not meet the standard if it had unusual growth possibilities or is unusually free from risk.

The general consensus of the survey indicates that most oil companies established certain minimum profitability requirements within functions or areas, even though risks within a function vary widely from project to project. The risk may be either in the construction cost, the life of the project, the annual volume, or the sales price of the product.

Equipment Replacement . . .

Sources and Cost of Funds

Most firms, particularly well-established ones, employ equipment financing methods which will tend to maximize the return on the shareholder's equity. That is, whenever possible, debt capital is used on either an indirect or direct loan basis in order to trade on the equity and thereby maximize the company's return on net worth.

Conoco estimates that over the long run about 25% of its expansion funds come from long-term debt capital and about 75% from the sale of common stock or retained earnings. Sun Oil states that "generally such expenditures are closely geared to our cash flow (depreciation and retained earnings) but limited borrowings over the years have proved advantageous for pipline construction." Several years ago the company borrowed $40 million to enter Venezuelan production and to modernize its marketing facilities with a new multi-blend gasoline pump.

While servicing companies may finance a high percentage of the cost of their equipment with short term borrowings, most of the oil companies borrow long term, entering the money market when it is favorable, even if the funds are not needed for a year or two. Humble's assistant controller says, "We are inclined to face each major replacement of equipment . . . from one economic period to another as the cost of financing and availability of funds change."

Lease or Purchase Alternatives

Leasing of petroleum equipment varies widely from company to company, and it is difficult to generalize. Most firms usually evaluate lease or purchase alternatives, but only small portions of the total equipment is leased. One firm relates finding it expeditious to lease equipment in certain cases, in order to release funds for working capital or for use on projects which are either not subject to loaning conditions or otherwise unsuitable for outside investors. The firm consideres that leasing assumes a faster write-off the rental expenditures as opposed to receiving tax-free return of investment through depreciation charges.

One major company states that it will not lease the complex and technical equipment such as a refinery processing unit, but occasionally will lease less specialized equipment, such as office buildings, automotive equipment, and welding machines.

Long-term leases are expected not only to completely amortize the lessor's cost but also give him a fair rate of return. Therefore an oil company would not consider leasing unless there was an operating advantage (such as the technical ability of the lessor) or if his rate of return was about that of the going interest rate. Naturally, the company would be willing to pay higher lease payments if the lease period is not long enough for the lessor to amortize his investment under normal payments.

Typically an oil company owns the majority of its physical facilities, plants, ships, trucks, etc., but companies lease, rather than own, retail service station properties. Texas Eastern Transmission leases its automotive equipment in addition to its electronic computer, even though leasing lowers its depreciation rate base.

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
TEMPLE (pop. 30,419)			
Retail sales	+ 3†	+ 23	+ 6
Apparel stores	+ 14†	+ 40	+ 8
Drug stores	+ 1†	+ 6	+ 3
Furniture and household appliance stores	+ 1†	+ 39	+ 22
Lumber, building material, and hardware stores	+ 1†	+ 12	— 4
Postal receipts* $	34,124	— 6	+ 3
Building permits, less federal contracts $	402,523	+ 25	+ 52
Bank debits (thousands) $	25,040	+ 6	+ 8
TERRELL (pop. 13,803)			
Postal receipts* $	7,703	+ 20	+ 3
Building permits, less federal contracts $	74,011	— 11	+ 46
Bank debits (thousands) $	7,627	+ 8	+ 11
End-of-month deposits (thousands) ‡ $	7,265	+ 4	+ 5
Annual rate of deposit turnover	12.3	+ 3	+ 8
TEXARKANA, TEX. (pop. 30,218)			
Retail sales	+ 3†	+ 5	+ 4
Apparel stores	+ 14†	+ 54	+ 9
Furniture and household appliance stores	+ 1†	+ 10	— 4
Postal receipts* $	53,187	— 4	**
Building permits, less federal contracts $	166,290	— 43	+105
Bank debits (thousands) $	52,784	+ 2	+ 4
End-of-month deposits (thousands) ‡ $	16,806	**	+ 1
Annual rate of deposit turnover	16.3	+ 2	— 5
Employment (area)	28,900	+ 1	— 1
Manufacturing employment (area)	3,910	— 2	— 2
Percent unemployed (area)	7.7	— 1	+ 17
TEXAS CITY (pop. 32,065)			
Postal receipts* $	20,394	— 3	+ 5
Building permits, less federal contracts $	442,851	— 47	+ 78
Bank debits (thousands) $	22,186	**	**
End-of-month deposits (thousands) ‡ $	11,994	— 3	+ 12
Annual rate of deposit turnover	21.9	+ 2	— 10
Employment (area)	52,600	— 1	+ 4
Manufacturing employment (area)	10,660	— 1	— 1
Percent unemployed (area)	9.1	+ 6	+ 32
TOMBALL (pop. 1,713)			
Building permits, less federal contracts $	6,000	— 99	— 94
Bank debits (thousands) $	6,481	+ 8	+ 11
End-of-month deposits (thousands) ‡ $	5,068	— 3	+ 2
Annual rate of deposit turnover	15.1	+ 5	+ 5
TYLER (pop. 51,230)			
Retail sales			
Apparel stores	+ 14†	+ 17	+ 28
Florists	.....	+ 16	— 10
Postal receipts* $	85,364	+ 10	+ 11
Building permits, less federal contracts $	779,305	— 32	+ 63
Bank debits (thousands) $	88,677	+ 6	**
End-of-month deposits (thousands) ‡ $	60,624	— 2	+ 8
Annual rate of deposit turnover	17.4	+ 7	— 7
UVALDE (pop. 10,293)			
Postal receipts* $	7,183	— 2	— 6
Building permits, less federal contracts $	51,542	— 37	+ 44
Bank debits (thousands) $	10,000	+ 12	+ 18
End-of-month deposits (thousands) ‡ $	9,129	+ 8	+ 20
Annual rate of deposit turnover	13.6	+ 7	+ 1
VERNON (pop. 12,141)			
Postal receipts* $	11,048	— 6	+ 23
Building permits, less federal contracts $	290,526	+ 42	+199
Bank debits (thousands) $	14,324	**	+ 29
End-of-month deposits (thousands) ‡ $	19,040	— 3	**
Annual rate of deposit turnover	8.9	+ 5	+ 29

Local Business Conditions

City and item	Aug 1961	Percent change: Aug 1961 from July 1961	Percent change: Aug 1961 from Aug 1960
VICTORIA (pop. 33,047)			
Retail sales	+ 3†	+ 8	••
Automotive stores	+ 1†	+ 8	••
Food stores	+ 1†	+ 4	+ 6
Lumber, building material, and hardware stores	+ 1†	+ 15	— 14
Postal receipts* $	30,954	— 6	+ 5
Building permits, less federal contracts $	424,685	— 26	+ 35
Bank debits (thousands) $	61,715	+ 8	+ 38
End-of-month deposits (thousands) ‡ $	75,280	+ 2	— 1
Annual rate of deposit turnover	9.9	+ 6	+ 34
WACO (pop. 97,808)			
Retail sales	+ 3†	+ 24	+ 7
Apparel stores	+ 14†	— 6	+ 4
Florists	.....	+ 7	— 2
Furniture and household appliance stores	+ 1†	+ 14	— 4
General merchandise stores	+ 9†	+ 25	+ 9
Lumber, building material, and hardware stores	+ 1†	+ 49	+ 22
Postal receipts* $	145,668	+ 5	+ 7
Building permits, less federal contracts $	778,608	+ 46	— 34
Bank debits (thousands) $	105,271	+ 2	— 3
End-of-month deposits (thousands) ‡ $	68,757	••	••
Annual rate of deposit turnover	18.4	+ 1	— 4
Employment (area)	47,650	••	— 1
Manufacturing employment (area)	9,910	— 1	— 3
Percent unemployed (area)	5.4	— 4	+ 17
WAXAHACHIE (pop. 12,749)			
Postal receipts* $	11,536	— 28	— 1
Building permits, less federal contracts $	40,240	— 6	— 37
Bank debits (thousands) $	8,000	— 3	— 2
End-of-month deposits (thousands) ‡ $	9,021	+ 3	.....
Annual rate of deposit turnover	10.8	— 4	.....
WEATHERFORD (pop. 9,759)			
Postal receipts* $	9,516	— 5	+ 21
Building permits, less federal contracts $	48,450	— 80	— 7
End-of-month deposits (thousands) ‡ $	17,058	+ 5	+ 9
WESLACO (pop. 15,649)			
Retail sales			
Food stores	+ 1†	— 3	+ 4
Postal receipts* $	6,842	— 23	— 8
Building permits, less federal contracts $	257,105	+223	+501
Bank debits (thousands) $	9,967	+ 58	+ 19
End-of-month deposits (thousands) ‡ $	8,458	+ 20	+ 25
Annual rate of deposit turnover	15.4	+ 40	— 2
WICHITA FALLS (pop. 101,724)			
Retail sales	+ 3†	+ 11	+ 13
Apparel stores	+ 14†	+ 24	+ 10
Automotive stores	+ 1†	+ 14	+ 10
Drug stores	+ 1†	— 1	— 3
Food stores	+ 1†	— 2	— 3
Furniture and household appliance stores	+ 1†	+ 73	+ 56
Lumber, building material, and hardware stores	+ 1†	••	+ 34
Postal receipts* $	115,866	+ 6	+ 5
Building permits, less federal contracts $	1,477,165	— 42	— 34
Bank debits (thousands) $	115,671	+ 1	— 5
End-of-month deposits (thousands) ‡ $	99,082	— 1	+ 3
Annual rate of deposit turnover	13.9	+ 1	— 7
Employment (area)	45,300	••	+ 7
Manufacturing employment (area)	3,740	— 4	••
Percent unemployed (area)	4.6	— 8	— 4

Equipment Replacement . . .

Depreciation

Depreciation methods vary from firm to firm but most large companies use the group plan, applying straight line depreciation to each group of equipment. This is true with the exception of production facilities, which are depreciated on the familiar unit-of-production basis. In the words of the secretary of Texaco, under group plan . . . "depreciation rates based on estimated useful life are applied to the book value of each class of property without adjustment to relieve fully depreciated items from the base. Upon normal retirement of individual units, the book value plus retirement expense, less salvage, is charged to the depreciation reserve; upon sale or extraordinary abandonment of major units the gain or loss on disposal is credited or charged to income."

On the other hand, Sunray Mid-Continent is an example of a company which employs, whenever possible, accelerated depreciation methods in order to generate the earliest cash flow from operations. For financial purposes they use the straight line means. Another refining official said his firm's depreciation policy was set on the declining balance method, which gives the most liberal tax write-off in the first few years.

The unit of production method used for production equipment, e.g., casing, tubing, pumping equipment, prime movers, is much more favorable than the normal straight line method *if* the unit production ratio is high over the first few years of production.

In the gas transmission industry an even different situation arises. The Federal Power Commission allows the firms to earn a fixed percentage on net plant and equipment; therefore, the more slowly equipment is depreciated, the larger the undepreciated balance or book value for applying the percentage.

Due to the high degree of obsolescence in well servicing equipment, most of it is depreciated using the declining balance method. The western company depreciates its assets over a six-year period, using the double declining balance method. Halliburton, in 1960, switched to the straight-line method of depreciation and claims gains or losses on disposition of all assets.

Importance of Consistency

In conclusion there is one thing which must be continually emphasized. Approaching the capital expenditure decision, it is most important to realize there are few absolutely correct answers. Rather it is the task of the executive to select from several courses of action the one that is most likely to yield the greatest measure of profitability. Thus consistency is far more important than accuracy in calculating payouts and rates of returns. By using the same methods year after year, not only will all alternative project rates of return be comparable, but the figures will be comparable with past and future results.

Because of the highly technical nature of equipment replacement studies, the author has compiled a bibliography of books, pamphlets, and magazine articles for the reader who might want to go more deeply into the subject. A copy of the bibliography will be sent on request.

BAROMETERS OF TEXAS BUSINESS

All figures are for Texas unless otherwise indicated. All indexes are based on the average months for 1947–49, except where indicated; all are adjusted for seasonal variation, except annual indexes. Employment estimates are Texas Employment Commission data in cooperation with the Bureau of Labor Statistics. The index of Texas Business Activity is based on bank debits in 20 cities, adjusted for price level. An asterisk (*) indicates preliminary data subject to revision. Revised data are marked (r).

	Aug 1961	July 1961	Aug 1960	Year-to-date average 1961	Year-to-date average 1960
GENERAL BUSINESS ACTIVITY					
Texas business activity, index	256	230	239	238	228
Miscellaneous freight carloadings in SW District, index	76	75	75	76	79
Ordinary life insurance sales, index	400	407	408	396	409
Wholesale prices in U.S., unadjusted index	119.0	118.6	119.2	119.3	119.6
Consumers' prices in U.S., unadjusted index	128.0	128.1	126.6	127.6	126.1
Income payments to individuals in U.S. (billions, at seasonally adjusted annual rate)	$ 419.3*	$ 421.2r	$ 405.2	$ 411.9*	$ 401.0
Business failures (number)	57	45	44	52	41
Newspaper linage, index	172.5	168.7	170.4	166.4	174.2
TRADE					
Total retail sales, index (1957–59=100)	112*	105r	107r	.....	.....
Durable-goods sales, index (1957–59=100)	113*	104r	104r	.....	.....
Nondurable-goods sales, index (1957–59=100)					
Ratio of credit sales to net sales in department and apparel stores	69.5*	70.1*	70.1r	70.5*	70.7r
Ratio of collections to outstandings in department and apparel stores	30.2*	35.4*	31.3r	35.0*	35.9r
PRODUCTION					
Total electric power consumption, index	471*	439*	444r	419*	404r
Industrial electric power consumption, index	409*	392*	386r	394*	394r
Crude oil production, index	110.7*	110.0*	106.1r	109.8*	109.9r
Crude oil runs to stills, index	148	150	145	150	148
Average daily production per oil well	12.5	12.3	12.4	12.9	13.1
Construction authorized, index (1957–59=100)	151.4	115.4	118.3	114.0	106.4
Residential building (1957–59=100)	125.1	115.6	90.6	99.1	93.7
Nonresidential building (1957–59=100)	198.1	121.7	166.0	137.5	128.8
AGRICULTURE					
Prices received by farmers, unadjusted index (1910–14=100)	262	258	250	253	245
Prices paid by farmers in U.S., unadjusted index (1910–14=100)	301	300	298	301	300
Ratio of Texas farm prices received to U. S. prices paid by farmers	87	86	84	84	82
FINANCE					
Bank debits, index	305	273	285	284	271
Bank debits, U. S., index	273	258	258	261	241
Reporting member banks, Dallas Reserve District:					
Loans (millions)	$ 3,058	$ 3,020	$ 2,883	$ 3,010	$ 2,865
Loans and investments (millions)	$ 5,003	$ 5,083	$ 4,568	$ 4,902	$ 4,487
Adjusted demand deposits (millions)	$ 2,790	$ 2,768	$ 2,668	$ 2,742	$ 2,657
Revenue receipts of the StateComptroller (thousands)	$ 93,809	$ 91,562	$ 90,214	$109,198	$109,762
Federal internal revenue receipts (thousands)	$360,126	$170,882	$323,836	$303,903	$280,733
LABOR					
Total nonagricultural employment (thousands)	2,557.7*	2,556.5r	2,552.6r	2,538.8*	2,533.7r
Total manufacturing employment (thousands)	488.7*	488.3r	493.1r	483.5*	491.5r
Durable-goods employment (thousands)	232.3*	232.5r	233.7r	228.7*	234.3r
Nondurable-goods employment (thousands)	256.4*	255.8r	259.4r	254.8*	257.2r
Average weekly earnings—Manufacturing, index	99.3*	99.5r	99.8	99.9*	100.2
Average weekly hours—Manufacturing, index (1957–59=100)	183.9*	180.9r	175.8	180.6*	175.5

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